



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 22H, PART 24E, PART 27 MEASUREMENT AND TEST REPORT

For

Sun Cupid Technology (HK) Ltd.

16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong.

FCC ID: 2ADINN5004L

Report Type: Original Report	Product Type: LTE PDA
Report Number: RDG200526012-00F	
Report Date: 2020-06-24 Ivan Cao	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		LTE PDA
EUT Model:		N5004L
Operation modes:		GSM Voice, GPRS/EDGE Data, WCDMA(R99 (Voice+Data), HSDPA/HSUPA/HSPA+) FDD-LTE
Operation Frequency:		GSM 850: 824-849 MHz(TX); 869-894 MHz(RX) PCS 1900: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 4: 1710-1755 MHz(TX), 2110-2155 MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 2: 1850-1910 MHz(TX), 1930-1990 MHz(RX) LTE Band 4: 1710-1755 MHz(TX), 2110-2155 MHz(RX) LTE Band 5: 824-849 MHz(TX), 869-894 MHz(RX) LTE Band 7: 2500-2570 MHz(TX), 2620-2690 MHz(RX) LTE Band 12: 699-716 MHz(TX); 729-746 MHz(RX) LTE Band 66: 1710-1780 MHz(TX), 2110-2180 MHz(RX) LTE Band 71: 663-698 MHz(TX), 617-652 MHz(RX)
Modulation Type:		GMSK, 8PSK, BPSK, QPSK, 16QAM
Adapter Information	Model:	HJ-0502000W2-US
	Input:	100-240Vac 50/60Hz 0.3A
	Output:	5.0Vdc, 2000mA
Rated Input Voltage:		DC 3.8V from battery or DC 5V from Adapter
Serial Number:		RDG200526012-RF-S1
EUT Received Date:		2020.05.29
EUT Status:		Good

Objective

This report is prepared on behalf of **Sun Cupid Technology (HK) Ltd.** in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27 of the Federal Communications Commission's rules.

The objective is to determine compliance with FCC Rules for output power, modulation characteristic, occupied bandwidth, spurious emissions at antenna terminal, spurious radiated emission, frequency stability and band edge.

Related Submittal(s)/Grant(s)

FCC Part 15C DSS submissions with FCC ID: 2ADINN5004L
 FCC Part 15C DTS submissions with FCC ID: 2ADINN5004L
 FCC Part 15E NII submissions with FCC ID: 2ADINN5004L
 FCC Part 15C DXX submissions with FCC ID: 2ADINN5004L

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 – Miscellaneous wireless communications services

Applicable Standards: TIA-603-E-2016.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp.(Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions, radiated	30MHz ~ 1GHz: 5.85 dB 1G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “△”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA-603-E-2016.

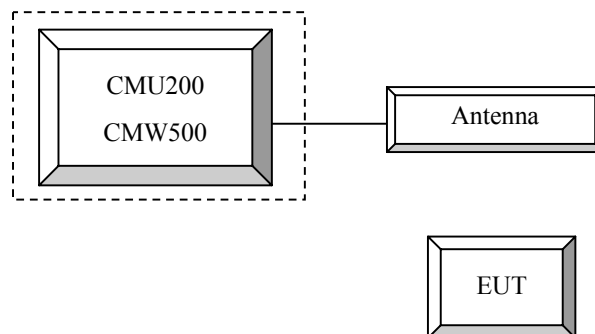
Equipment Modifications

No modification was made to the EUT.

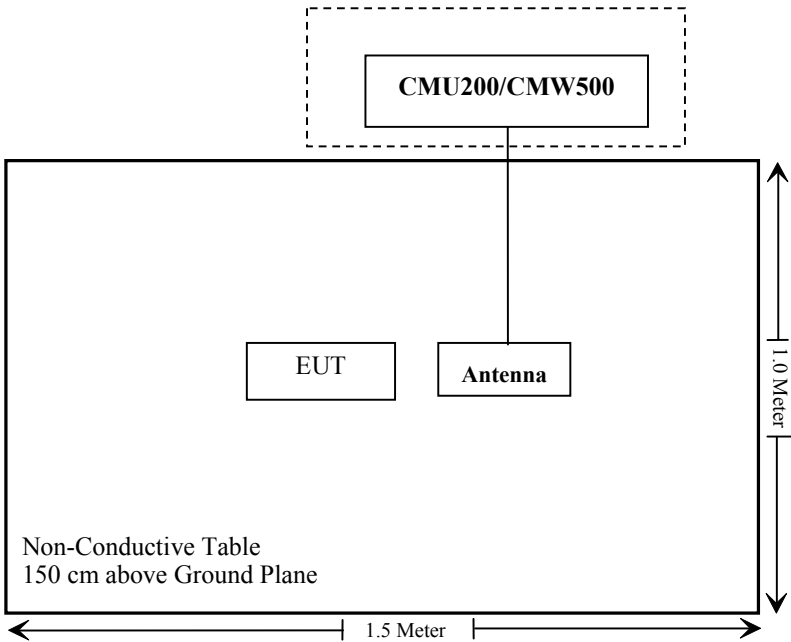
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universal Radio Communication Tester	CMU200	106 891
R&S	Wideband Radio Communication Tester	CMW500	147473
Un-known	ANTENNA	Un-known	Un-known

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC§1.1310, §2.1093	RF Exposure	Compliance
FCC§2.1046; § 22.913 (a); § 24.232 (c); §27.50	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
FCC§ 22.917 (a); § 24.238 (a); §27.53;	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 22.355; § 24.235; §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RDG200526012-20A.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E,27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50- RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to §27.50

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(c) (10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

(h),(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

Test Procedure

GSM/GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS or GSM + EGSM

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

> 27 dBm for EGPRS 850

> 26 dBm for EGPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB

Slot Config > Unchanged (if already set under MS signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3

Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)

Bit Stream > 2E9-1 PSR Bit Stream

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal on to turn on the signal and change settings

WCDMA-Release 99

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c / β_d	8/15

WCDMA HSDPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c / β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	$A_{hs} = \beta_{hs} / \beta_c$	30/15			

WCDMA HSUPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	$A_{hs}=\beta_{hs}/\beta_c$	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCI	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27

HSPA+

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

DC-HSDPA

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Radiated method:

TIA-603-E section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ERP/EIRP Test					
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-05-09	2021-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Conducted Output Power Test					
R&S	Universal Radio Communication Tester	CMU200	106 891	2019-12-14	2020-12-14
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-08-03	2020-08-03
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	/

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Test Items:	Radiation Below 1GHz	Radiation Above 1GHz	Conducted Output Power
Temperature:	25.7 °C	24.3°C	28.1°C
Relative Humidity:	43%	38 %	66 %
ATM Pressure:	100.8 kPa	100 kPa	100.9 kPa
Tester:	Joker Chen	Bond Qin	James Chen
Test Date:	2020-06-05	2020-06-07	2020-06-04

Test Result: Compliance

Conducted Output Power**Cellular Band & PCS Band**

Band	Channel No.	Conducted Peak Output Power (dBm)								
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slots	GPRS 3 TX Slots	GPRS 4 TX Slots	EGPRS 1 TX Slot	EGPRS 2 TX Slots	EGPRS 3 TX Slots	EGPRS 4 TX Slots
Cellular	128	31.8	32.28	30.91	28.82	28.21	27.23	26.13	24.29	22.88
	190	32.2	32.67	31.34	29.32	28.45	27.36	26.28	24.45	23.13
	251	32.0	32.51	31.11	29.26	28.41	27.32	26.34	24.54	23.25
PCS	512	30.3	30.71	29.34	26.97	26.01	26.74	25.75	23.82	22.76
	661	30.4	30.82	29.51	27.18	26.26	26.83	25.85	23.89	22.87
	810	30.3	30.97	29.67	27.34	26.34	26.89	26.04	24.21	23.09

WCDMA Band 2

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	23.61	2.79	23.51	2.63	23.43	2.72
HSDPA	1	21.42	5.38	20.85	5.00	21.00	5.26
	2	21.42	5.38	20.88	5.00	20.85	5.35
	3	21.45	5.54	20.85	4.70	21.12	5.14
	4	21.32	5.03	21.3	4.84	21	5.05
HSUPA	1	21.52	4.84	21.34	5.67	21.43	5.71
	2	21.22	5.08	21.54	5.67	21.28	5.61
	3	21.52	4.93	20.94	5.43	21.55	5.47
	4	21.2	5.02	21.1	5.47	21.08	5.51
	5	21.57	5.05	20.89	5.82	21.11	5.67
DC-HSDPA	1	21.52	4.78	21.29	5.67	21.51	5.76
	2	21.22	5.16	21.34	5.67	21.3	5.66
	3	21.62	5.09	20.89	5.43	21.73	5.47
	4	21.32	4.62	21.18	5.47	21.17	5.47
HSPA+ (16QAM)	1	21.41	4.98	21.01	5.52	21.01	5.62

WCDMA Band 4

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	23.31	3.40	23.06	3.21	22.61	3.37
HSDPA	1	20.70	5.51	20.81	5.38	20.78	5.16
	2	20.85	5.57	20.77	5.65	20.91	4.92
	3	20.56	5.6	20.92	5.36	20.84	5.48
	4	20.65	5.41	20.97	5.38	20.83	5.56
HSUPA	1	21.45	6.79	21.01	6.57	20.75	6.92
	2	21.21	6.79	20.87	6.63	20.67	6.86
	3	21.15	6.79	21.11	6.27	20.43	6.57
	4	21.18	6.89	20.81	6.72	20.78	7.12
	5	21.81	6.94	21.33	6.57	20.75	6.88
DC-HSDPA	1	21.51	6.91	20.89	6.37	20.75	6.74
	2	20.96	6.79	21.27	6.64	20.61	6.86
	3	21.15	6.55	21.38	6.36	20.48	6.67
	4	20.97	6.91	21.16	6.93	20.53	7.04
HSPA+ (16QAM)	1	21.95	6.94	21.18	6.65	21.02	6.84

WCDMA Band 5

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	22.89	2.82	22.53	3.01	22.92	3.62
HSDPA	1	20.67	5.06	20.56	4.04	20.66	5.42
	2	20.70	4.82	20.77	4.32	20.62	5.42
	3	21.03	4.96	20.71	4.11	20.76	5.43
	4	21.03	4.88	20.64	4.06	20.61	5.49
HSUPA	1	20.54	6.12	20.65	6.22	20.98	5.64
	2	20.22	6.13	20.71	6.38	21.10	5.58
	3	20.53	6.1	20.62	6.58	20.83	5.64
	4	20.54	5.88	20.8	6.16	20.82	5.8
	5	20.42	6.39	20.63	6.17	21.18	5.8
DC-HSDPA	1	20.54	6.52	21.01	6.28	21.30	5.7
	2	20.41	5.95	20.89	6.46	21.16	5.64
	3	20.62	6.00	20.62	6.58	20.85	5.64
	4	20.63	5.78	21.04	6.01	20.88	6.04
HSPA+ (16QAM)	1	20.48	6.63	20.36	6.22	21.42	5.8

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.75	23.45	23.78
		RB1#3	23.91	23.65	24.01
		RB1#5	23.76	23.46	23.83
		RB3#0	23.79	23.47	23.87
		RB3#3	23.82	23.50	23.84
		RB6#0	22.84	22.55	22.92
	16QAM	RB1#0	22.75	22.42	22.86
		RB1#3	22.94	22.64	23.08
		RB1#5	22.77	22.43	22.86
		RB3#0	22.86	22.65	22.76
		RB3#3	22.81	22.56	22.76
		RB6#0	21.73	21.54	21.88
3MHz	QPSK	RB1#0	23.81	23.52	23.87
		RB1#8	23.77	23.52	23.92
		RB1#14	23.70	23.51	23.85
		RB6#0	22.79	22.50	22.82
		RB6#9	22.79	22.49	22.80
		RB15#0	22.79	22.50	22.82
	16QAM	RB1#0	23.33	22.60	22.87
		RB1#8	23.29	22.58	22.83
		RB1#14	23.19	22.61	22.79
		RB6#0	21.83	21.45	21.79
		RB6#9	21.76	21.52	21.75
		RB15#0	21.81	21.43	21.89
5MHz	QPSK	RB1#0	23.69	23.44	23.75
		RB1#13	23.76	23.56	23.87
		RB1#24	23.62	23.50	23.72
		RB15#0	22.80	22.48	22.92
		RB15#10	22.75	22.55	22.83
		RB25#0	22.76	22.51	22.80
	16QAM	RB1#0	22.63	22.66	22.77
		RB1#13	22.66	22.81	22.92
		RB1#24	22.52	22.73	22.76
		RB15#0	21.81	21.47	21.94
		RB15#10	21.77	21.53	21.86
		RB25#0	21.82	21.51	21.85

10MHz	QPSK	RB1#0	23.78	23.49	23.82
		RB1#25	23.83	23.62	24.10
		RB1#49	23.61	23.54	23.91
		RB25#0	22.80	22.55	22.92
		RB25#25	22.77	22.59	22.82
		RB50#0	22.75	22.59	22.87
	16QAM	RB1#0	23.29	22.60	22.76
		RB1#25	23.40	22.82	22.96
		RB1#49	23.12	22.71	22.79
		RB25#0	21.85	21.56	22.00
		RB25#25	21.76	21.62	21.91
		RB50#0	21.76	21.62	21.92
15MHz	QPSK	RB1#0	23.73	23.39	23.63
		RB1#38	23.68	23.55	23.92
		RB1#74	23.49	23.53	23.84
		RB36#0	22.83	22.64	22.95
		RB36#39	22.75	22.71	22.96
		RB75#0	22.78	22.68	22.92
	16QAM	RB1#0	23.24	22.52	22.96
		RB1#38	23.22	22.67	23.14
		RB1#74	23.00	22.63	23.05
		RB36#0	21.76	21.60	21.87
		RB36#39	21.65	21.64	21.88
		RB75#0	21.73	21.62	21.88
20MHz	QPSK	RB1#0	23.57	23.26	23.37
		RB1#50	23.80	23.70	23.92
		RB1#99	23.31	23.47	23.61
		RB50#0	22.70	22.48	22.77
		RB50#50	22.54	22.57	22.78
		RB100#0	22.66	22.58	22.77
	16QAM	RB1#0	22.86	22.43	22.90
		RB1#50	23.09	22.90	23.40
		RB1#99	22.58	22.62	23.07
		RB50#0	21.68	21.50	21.78
		RB50#50	21.57	21.60	21.78
		RB100#0	21.63	21.56	21.79

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	24.60	24.49	24.19
		RB1#3	24.78	24.59	24.44
		RB1#5	24.64	24.47	24.25
		RB3#0	24.80	24.66	24.38
		RB3#3	24.77	24.64	24.40
		RB6#0	23.68	23.48	23.28
	16QAM	RB1#0	23.60	23.65	23.24
		RB1#3	23.80	23.80	23.47
		RB1#5	23.64	23.64	23.27
		RB3#0	23.94	23.64	23.44
		RB3#3	23.95	23.64	23.47
		RB6#0	22.76	22.56	22.27
3MHz	QPSK	RB1#0	24.64	24.50	24.22
		RB1#8	24.64	24.46	24.29
		RB1#14	24.70	24.37	24.26
		RB6#0	23.62	23.41	23.10
		RB6#9	23.64	23.37	23.17
		RB15#0	23.68	23.52	23.26
	16QAM	RB1#0	24.15	23.71	23.25
		RB1#8	24.16	23.66	23.26
		RB1#14	24.11	23.63	23.23
		RB6#0	22.72	22.54	22.16
		RB6#9	22.74	22.52	22.19
		RB15#0	22.82	22.55	22.38
5MHz	QPSK	RB1#0	24.48	24.42	24.10
		RB1#13	24.69	24.51	24.25
		RB1#24	24.57	24.33	24.17
		RB15#0	23.71	23.53	23.31
		RB15#10	23.74	23.48	23.30
		RB25#0	23.67	23.56	23.23
	16QAM	RB1#0	23.41	23.79	23.21
		RB1#13	23.54	23.84	23.32
		RB1#24	23.47	23.69	23.25
		RB15#0	22.83	22.64	22.40
		RB15#10	22.86	22.56	22.42
		RB25#0	22.86	22.65	22.38

10MHz	QPSK	RB1#0	24.61	24.53	24.18
		RB1#25	24.90	24.65	24.41
		RB1#49	24.71	24.33	24.28
		RB25#0	23.72	23.63	23.30
		RB25#25	23.78	23.55	23.25
		RB50#0	23.79	23.61	23.34
	16QAM	RB1#0	24.13	23.78	23.21
		RB1#25	24.35	23.85	23.37
		RB1#49	24.20	23.53	23.26
		RB25#0	22.84	22.79	22.48
		RB25#25	22.91	22.67	22.47
		RB50#0	22.87	22.76	22.84
15MHz	QPSK	RB1#0	24.52	24.55	24.54
		RB1#38	24.70	24.61	24.75
		RB1#74	24.58	24.58	24.58
		RB36#0	23.77	23.73	23.75
		RB36#39	23.82	23.73	23.77
		RB75#0	23.81	23.78	23.80
	16QAM	RB1#0	24.12	23.74	23.74
		RB1#38	24.20	23.91	23.90
		RB1#74	24.18	23.74	23.80
		RB36#0	22.76	22.78	22.84
		RB36#39	22.77	22.80	22.80
		RB75#0	22.80	22.83	22.87
20MHz	QPSK	RB1#0	24.38	24.43	24.30
		RB1#50	24.87	24.82	24.84
		RB1#99	24.42	24.44	24.38
		RB50#0	23.72	23.70	23.73
		RB50#50	23.78	23.75	23.72
		RB100#0	23.77	23.72	23.72
	16QAM	RB1#0	23.74	23.63	24.01
		RB1#50	24.15	24.10	24.37
		RB1#99	23.77	23.69	23.98
		RB50#0	22.80	22.86	22.85
		RB50#50	22.87	22.87	22.80
		RB100#0	22.85	22.87	22.83

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.93	23.89	23.84
		RB1#3	24.07	24.10	24.08
		RB1#5	23.93	23.95	23.90
		RB3#0	24.04	24.01	23.95
		RB3#3	23.98	24.03	23.97
		RB6#0	23.00	23.06	22.95
	16QAM	RB1#0	22.90	22.99	22.82
		RB1#3	23.11	23.23	23.08
		RB1#5	22.91	23.00	22.91
		RB3#0	23.12	22.91	23.06
		RB3#3	23.13	22.88	22.99
		RB6#0	22.01	22.03	21.92
3MHz	QPSK	RB1#0	23.92	23.88	23.89
		RB1#8	23.93	23.94	23.90
		RB1#14	23.93	23.94	23.89
		RB6#0	22.95	22.93	22.88
		RB6#9	22.94	22.94	22.91
		RB15#0	22.95	22.92	22.91
	16QAM	RB1#0	23.45	23.01	22.91
		RB1#8	23.40	23.04	22.87
		RB1#14	23.39	23.02	22.85
		RB6#0	21.97	21.90	21.82
		RB6#9	21.91	21.94	21.82
		RB15#0	21.97	21.84	21.94
5MHz	QPSK	RB1#0	23.78	23.75	23.79
		RB1#13	23.91	23.94	23.89
		RB1#24	23.76	23.79	23.79
		RB15#0	22.91	22.89	22.94
		RB15#10	22.93	22.89	22.93
		RB25#0	22.87	22.92	22.88
	16QAM	RB1#0	22.69	23.09	22.85
		RB1#13	22.82	23.20	22.95
		RB1#24	22.68	23.07	22.84
		RB15#0	21.90	21.84	21.92
		RB15#10	21.89	21.87	21.91
		RB25#0	21.89	21.83	21.87
10MHz	QPSK	RB1#0	23.85	23.84	23.89
		RB1#25	24.06	24.04	24.06
		RB1#49	23.89	23.93	23.89
		RB25#0	22.92	22.91	22.95
		RB25#25	22.90	22.90	22.85
		RB50#0	22.91	22.93	22.90
	16QAM	RB1#0	23.36	22.96	22.83
		RB1#25	23.55	23.13	22.94
		RB1#49	23.38	23.04	22.88
		RB25#0	21.91	21.91	21.99
		RB25#25	21.96	21.90	21.92
		RB50#0	21.88	21.89	21.90

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.59	21.63	21.64
		RB1#13	21.72	21.74	21.85
		RB1#24	21.56	21.66	21.72
		RB15#0	20.71	20.69	20.86
		RB15#10	20.68	20.70	20.81
		RB25#0	20.66	20.73	20.84
	16QAM	RB1#0	20.46	20.88	20.77
		RB1#13	20.55	21.02	20.97
		RB1#24	20.43	20.89	20.84
		RB15#0	19.69	19.70	19.90
		RB15#10	19.67	19.65	19.88
		RB25#0	19.68	19.67	19.87
10MHz	QPSK	RB1#0	21.68	21.67	21.73
		RB1#25	21.87	21.96	21.93
		RB1#49	21.71	21.72	21.73
		RB25#0	20.74	20.77	20.88
		RB25#25	20.72	20.74	20.88
		RB50#0	20.73	20.75	20.85
	16QAM	RB1#0	21.17	20.79	20.80
		RB1#25	21.35	20.99	20.98
		RB1#49	21.19	20.82	20.82
		RB25#0	19.73	19.80	19.98
		RB25#25	19.76	19.82	19.98
		RB50#0	19.71	19.76	19.89
15MHz	QPSK	RB1#0	21.60	21.61	21.68
		RB1#38	21.70	21.74	21.81
		RB1#74	21.61	21.67	21.68
		RB36#0	20.77	20.76	20.81
		RB36#39	20.79	20.75	20.81
		RB75#0	20.79	20.75	20.79
	16QAM	RB1#0	21.07	20.71	21.05
		RB1#38	21.21	20.82	21.18
		RB1#74	21.15	20.76	21.17
		RB36#0	19.72	19.74	19.79
		RB36#39	19.72	19.71	19.77
		RB75#0	19.73	19.77	19.78
20MHz	QPSK	RB1#0	21.45	21.48	21.48
		RB1#50	21.87	21.89	21.91
		RB1#99	21.48	21.55	21.51
		RB50#0	20.66	20.74	20.79
		RB50#50	20.72	20.69	20.73
		RB100#0	20.68	20.72	20.79
	16QAM	RB1#0	20.69	20.65	21.03
		RB1#50	21.09	21.03	21.39
		RB1#99	20.73	20.70	21.06
		RB50#0	19.63	19.75	19.82
		RB50#50	19.66	19.67	19.71
		RB100#0	19.71	19.72	19.77

LTE Band 12

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.66	23.72	23.74
		RB1#3	23.85	23.94	23.96
		RB1#5	23.74	23.75	23.75
		RB3#0	23.73	23.69	23.75
		RB3#3	23.75	23.70	23.73
		RB6#0	22.75	22.83	22.83
	16QAM	RB1#0	22.64	22.72	22.66
		RB1#3	22.78	22.94	22.84
		RB1#5	22.66	22.74	22.67
		RB3#0	22.90	22.56	22.76
		RB3#3	22.94	22.59	22.76
		RB6#0	21.75	21.77	21.71
3MHz	QPSK	RB1#0	23.66	23.87	23.70
		RB1#8	23.71	23.87	23.75
		RB1#14	23.65	23.82	23.74
		RB6#0	22.62	22.82	22.73
		RB6#9	22.72	22.76	22.75
		RB15#0	22.71	22.74	22.72
	16QAM	RB1#0	22.83	22.70	23.26
		RB1#8	22.84	22.70	23.20
		RB1#14	22.80	22.70	23.18
		RB6#0	21.65	21.72	21.80
		RB6#9	21.79	21.66	21.75
		RB15#0	21.71	21.71	21.79
5MHz	QPSK	RB1#0	23.59	23.69	23.63
		RB1#13	23.77	23.83	23.76
		RB1#24	23.70	23.70	23.66
		RB15#0	22.62	22.85	22.66
		RB15#10	22.84	22.71	22.78
		RB25#0	22.72	22.75	22.67
	16QAM	RB1#0	22.54	22.80	22.69
		RB1#13	22.61	23.02	22.80
		RB1#24	22.54	22.90	22.69
		RB15#0	21.68	21.76	21.67
		RB15#10	21.85	21.64	21.76
		RB25#0	21.73	21.70	21.70
10MHz	QPSK	RB1#0	23.58	23.69	23.77
		RB1#25	23.89	23.92	23.91
		RB1#49	23.78	23.76	23.83
		RB25#0	22.51	22.87	22.80
		RB25#25	22.56	22.81	22.85
		RB50#0	22.55	22.81	22.81
	16QAM	RB1#0	23.14	22.77	22.62
		RB1#25	23.28	22.96	22.82
		RB1#49	23.13	22.89	22.72
		RB25#0	21.58	21.82	21.84
		RB25#25	21.55	21.77	21.91
		RB50#0	21.51	21.79	21.85

LTE Band 66

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	24.56	24.66	24.72
		RB1#3	24.79	24.90	24.91
		RB1#5	24.58	24.69	24.72
		RB3#0	24.82	24.90	24.91
		RB3#3	24.77	24.88	24.95
		RB6#0	23.72	23.73	23.79
	16QAM	RB1#0	23.68	23.83	23.78
		RB1#3	23.89	24.08	24.03
		RB1#5	23.68	23.85	23.81
		RB3#0	24.03	23.77	24.03
		RB3#3	24.04	23.83	24.03
		RB6#0	22.82	22.85	22.81
3MHz	QPSK	RB1#0	24.67	24.70	24.75
		RB1#8	24.62	24.72	24.79
		RB1#14	24.68	24.71	24.75
		RB6#0	23.62	23.59	23.62
		RB6#9	23.61	23.64	23.67
		RB15#0	23.70	23.76	23.85
	16QAM	RB1#0	24.25	23.93	23.82
		RB1#8	24.14	23.89	23.83
		RB1#14	24.14	23.86	23.78
		RB6#0	22.76	22.73	22.74
		RB6#9	22.76	22.78	22.74
		RB15#0	22.86	22.79	22.96
5MHz	QPSK	RB1#0	24.56	24.61	24.63
		RB1#13	24.68	24.73	24.75
		RB1#24	24.59	24.63	24.66
		RB15#0	23.75	23.75	23.83
		RB15#10	23.74	23.73	23.85
		RB25#0	23.68	23.75	23.80
	16QAM	RB1#0	23.51	23.97	23.75
		RB1#13	23.60	24.07	23.84
		RB1#24	23.47	23.94	23.78
		RB15#0	22.85	22.83	23.00
		RB15#10	22.85	22.80	23.01
		RB25#0	22.84	22.84	22.96
10MHz	QPSK	RB1#0	24.66	24.66	24.73
		RB1#25	24.82	24.82	24.89
		RB1#49	24.69	24.68	24.79
		RB25#0	23.75	23.74	23.84
		RB25#25	23.77	23.78	23.83
		RB50#0	23.76	23.83	23.91
	16QAM	RB1#0	24.19	23.87	23.79
		RB1#25	24.27	24.03	23.92
		RB1#49	24.18	23.86	23.79
		RB25#0	22.88	22.91	23.07
		RB25#25	22.88	22.94	23.09
		RB50#0	22.89	22.92	23.10

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15MHz	QPSK	RB1#0	24.57	24.56	24.57
		RB1#38	24.72	24.71	24.71
		RB1#74	24.61	24.64	24.74
		RB36#0	23.82	23.80	23.78
		RB36#39	23.82	23.83	23.84
		RB75#0	23.80	23.83	23.84
	16QAM	RB1#0	24.12	23.82	24.15
		RB1#38	24.18	23.94	24.20
		RB1#74	24.17	23.82	24.14
		RB36#0	22.77	22.81	22.83
		RB36#39	22.84	22.82	22.89
		RB75#0	22.81	22.89	22.91
20MHz	QPSK	RB1#0	24.39	24.41	24.34
		RB1#50	24.86	24.92	24.80
		RB1#99	24.47	24.49	24.48
		RB50#0	23.71	23.76	23.79
		RB50#50	23.79	23.76	23.82
		RB100#0	23.76	23.73	23.82
	16QAM	RB1#0	23.77	23.69	24.03
		RB1#50	24.11	24.08	24.42
		RB1#99	23.88	23.74	24.11
		RB50#0	22.81	22.87	22.94
		RB50#50	22.85	22.83	22.97
		RB100#0	22.85	22.85	22.94

LTE Band 71

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	23.46	23.12	23.25
		RB1#13	23.11	23.19	23.33
		RB1#24	23.02	23.14	23.29
		RB15#0	22.07	22.20	22.41
		RB15#10	22.15	22.20	22.39
		RB25#0	22.10	22.17	22.35
	16QAM	RB1#0	21.83	22.39	22.30
		RB1#13	21.96	22.48	22.42
		RB1#24	21.89	22.41	22.30
		RB15#0	21.14	21.21	21.46
		RB15#10	21.24	21.25	21.47
		RB25#0	21.17	21.28	21.42
10MHz	QPSK	RB1#0	23.06	23.13	23.27
		RB1#25	23.28	23.40	23.54
		RB1#49	23.07	23.19	23.38
		RB25#0	22.01	22.26	22.39
		RB25#25	22.25	22.28	22.34
		RB50#0	22.17	23.43	22.36
	16QAM	RB1#0	22.52	22.30	22.22
		RB1#25	22.73	22.46	22.46
		RB1#49	22.58	22.30	22.31
		RB25#0	21.11	21.34	21.52
		RB25#25	21.38	21.36	21.50
		RB50#0	21.25	22.43	21.43
15MHz	QPSK	RB1#0	22.95	23.01	23.14
		RB1#38	23.09	23.21	23.31
		RB1#74	22.90	23.07	23.31
		RB36#0	22.07	22.25	22.40
		RB36#39	22.21	22.30	22.44
		RB75#0	22.16	22.30	22.38
	16QAM	RB1#0	22.46	22.14	22.52
		RB1#38	22.62	22.38	22.64
		RB1#74	22.47	22.22	22.59
		RB36#0	21.08	21.25	21.34
		RB36#39	21.18	21.31	21.36
		RB75#0	21.15	21.29	21.34
20MHz	QPSK	RB1#0	22.79	22.87	22.95
		RB1#50	23.26	23.41	23.42
		RB1#99	22.82	23.02	23.10
		RB50#0	21.94	22.21	22.27
		RB50#50	22.08	22.28	22.22
		RB100#0	22.02	22.29	22.27
	16QAM	RB1#0	22.09	22.07	22.54
		RB1#50	22.51	22.57	22.88
		RB1#99	22.13	22.17	22.56
		RB50#0	20.99	21.28	21.33
		RB50#50	21.13	21.33	21.30
		RB100#0	21.07	21.32	21.33

PAR, Band 2

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.71	4.29	3.33	13
	100 RB		5.51	5.61	5.29	13
16QAM	1 RB	20 MHz	5.26	5.22	4.20	13
	100 RB		6.28	6.31	5.99	13

PAR, Band 4

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.56	4.17	4.04	13
	100 RB		5.19	5.77	5.42	13
16QAM	1 RB	20 MHz	4.55	5.16	4.78	13
	100 RB		5.99	6.67	6.22	13

PAR, Band 5

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.71	3.59	4.65	13
	50 RB		5.29	5.42	5.19	13
16QAM	1 RB	10 MHz	5.74	4.46	5.42	13
	50 RB		6.03	6.25	6.03	13

PAR, Band 7

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.84	5.77	5.67	13
	100 RB		5.38	5.61	5.90	13
16QAM	1 RB	20 MHz	6.31	6.09	5.80	13
	100 RB		6.15	6.41	6.73	13

PAR, Band 12

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	5.00	3.40	2.79	13
	50 RB		4.90	5.61	5.26	13
16QAM	1 RB	10 MHz	5.87	4.26	3.69	13
	50 RB		5.80	6.19	6.25	13

PAR, Band 66

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.46	4.58	4.81	13
	100 RB		5.16	5.51	5.64	13
16QAM	1 RB	20 MHz	4.36	5.54	5.77	13
	100 RB		5.99	6.44	6.51	13

PAR, Band 71

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.01	4.25	3.59	13
	100 RB		6.20	6.48	6.10	13
16QAM	1 RB	20 MHz	5.23	5.16	4.85	13
	100 RB		7.00	7.46	6.94	13

Note: peak-to-average ratio (PAR) <13 dB.

ERP & EIRP

Part 22H

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM 850 Middle Channel								
836.60	H	92.44	17.52	0.00	0.97	16.55	38.45	21.90
836.60	V	100.52	28.73	0.00	0.97	27.76	38.45	10.69
EGPRS850 Middle Channel								
836.60	H	91.38	16.46	0.00	0.97	15.49	38.45	22.96
836.60	V	96.50	24.71	0.00	0.97	23.74	38.45	14.71
WCDMA R99 Band 5 middle channel								
836.60	H	83.78	8.86	0.00	0.97	7.89	38.45	30.56
836.60	V	91.98	20.19	0.00	0.97	19.22	38.45	19.23

Part 24E

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
PCS 1900 Middle Channel								
1880.00	H	80.72	8.11	11.66	2.66	17.11	33.00	15.89
1880.00	V	90.75	18.28	11.66	2.66	27.28	33.00	5.72
EGPRS1900 Middle Channel								
1880.00	H	77.82	5.21	11.66	2.66	14.21	33.00	18.79
1880.00	V	84.76	12.29	11.66	2.66	21.29	33.00	11.71
WCDMA R99 Band 2 middle channel								
1880.00	H	84.59	11.98	11.66	2.66	20.98	33.00	12.02
1880.00	V	87.13	14.66	11.66	2.66	23.66	33.00	9.34

Part 27

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA R99 Band 4 middle channel								
1732.60	H	85.39	11.34	10.90	2.51	19.73	30.00	10.27
1732.60	V	85.28	10.91	10.90	2.51	19.30	30.00	10.70

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level

LTE Band 2

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)	
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)				
1880.00	1.40	QPSK	H	85.76	13.15	11.66	2.66	22.15	33.00	10.85	
1880.00			V	84.58	12.11	11.66	2.66	21.11	33.00	11.89	
1880.00	3.00		H	84.19	11.58	11.66	2.66	20.58	33.00	12.42	
1880.00			V	84.02	11.55	11.66	2.66	20.55	33.00	12.45	
1880.00	5.00		H	83.97	11.36	11.66	2.66	20.36	33.00	12.64	
1880.00			V	83.72	11.25	11.66	2.66	20.25	33.00	12.75	
1880.00	10.00		H	83.70	11.09	11.66	2.66	20.09	33.00	12.91	
1880.00			V	83.49	11.02	11.66	2.66	20.02	33.00	12.98	
1880.00	15.00		H	83.64	11.03	11.66	2.66	20.03	33.00	12.97	
1880.00			V	83.49	11.02	11.66	2.66	20.02	33.00	12.98	
1880.00	20.00		H	83.78	11.17	11.66	2.66	20.17	33.00	12.83	
1880.00			V	83.54	11.07	11.66	2.66	20.07	33.00	12.93	
1880.00	1.40		16QAM	H	85.68	13.07	11.66	2.66	22.07	33.00	10.93
1880.00				V	85.56	13.09	11.66	2.66	22.09	33.00	10.91
1880.00	3.00			H	84.03	11.42	11.66	2.66	20.42	33.00	12.58
1880.00				V	85.35	12.88	11.66	2.66	21.88	33.00	11.12
1880.00	5.00	H		84.21	11.60	11.66	2.66	20.60	33.00	12.40	
1880.00		V		83.98	11.51	11.66	2.66	20.51	33.00	12.49	
1880.00	10.00	H		83.08	10.47	11.66	2.66	19.47	33.00	13.53	
1880.00		V		83.88	11.41	11.66	2.66	20.41	33.00	12.59	
1880.00	15.00	H		83.52	10.91	11.66	2.66	19.91	33.00	13.09	
1880.00		V		83.36	10.89	11.66	2.66	19.89	33.00	13.11	
1880.00	20.00	H		83.19	10.58	11.66	2.66	19.58	33.00	13.42	
1880.00		V		83.10	10.63	11.66	2.66	19.63	33.00	13.37	

LTE Band 4

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1732.50	1.40	QPSK	H	85.80	11.75	10.90	2.51	20.14	30.00	9.86
1732.50			V	85.12	10.75	10.90	2.51	19.14	30.00	10.86
1732.50	3.00		H	84.86	10.81	10.90	2.51	19.20	30.00	10.80
1732.50			V	84.69	10.32	10.90	2.51	18.71	30.00	11.29
1732.50	5.00		H	84.08	10.03	10.90	2.51	18.42	30.00	11.58
1732.50			V	84.10	9.73	10.90	2.51	18.12	30.00	11.88
1732.50	10.00		H	83.98	9.93	10.90	2.51	18.32	30.00	11.68
1732.50			V	83.84	9.47	10.90	2.51	17.86	30.00	12.14
1732.50	15.00		H	83.71	9.66	10.90	2.51	18.05	30.00	11.95
1732.50			V	83.50	9.13	10.90	2.51	17.52	30.00	12.48
1732.50	20.00		H	83.29	9.24	10.90	2.51	17.63	30.00	12.37
1732.50			V	83.10	8.73	10.90	2.51	17.12	30.00	12.88
1732.50	1.40	16QAM	H	85.63	11.58	10.90	2.51	19.97	30.00	10.03
1732.50			V	84.58	10.21	10.90	2.51	18.60	30.00	11.40
1732.50	3.00		H	85.49	11.44	10.90	2.51	19.83	30.00	10.17
1732.50			V	84.38	10.01	10.90	2.51	18.40	30.00	11.60
1732.50	5.00		H	84.47	10.42	10.90	2.51	18.81	30.00	11.19
1732.50			V	84.21	9.84	10.90	2.51	18.23	30.00	11.77
1732.50	10.00		H	83.95	9.90	10.90	2.51	18.29	30.00	11.71
1732.50			V	83.55	9.18	10.90	2.51	17.57	30.00	12.43
1732.50	15.00		H	83.68	9.63	10.90	2.51	18.02	30.00	11.98
1732.50			V	83.28	8.91	10.90	2.51	17.30	30.00	12.70
1732.50	20.00		H	83.22	9.17	10.90	2.51	17.56	30.00	12.44
1732.50			V	83.07	8.70	10.90	2.51	17.09	30.00	12.91

LTE Band 5

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
836.50	1.40	QPSK	H	79.36	4.43	0.00	0.97	3.46	38.45	34.99
836.50			V	91.60	19.81	0.00	0.97	18.84	38.45	19.61
836.50	3.00		H	78.89	3.96	0.00	0.97	2.99	38.45	35.46
836.50			V	91.13	19.34	0.00	0.97	18.37	38.45	20.08
836.50	5.00		H	78.67	3.74	0.00	0.97	2.77	38.45	35.68
836.50			V	90.91	19.12	0.00	0.97	18.15	38.45	20.30
836.50	10.00		H	78.13	3.20	0.00	0.97	2.23	38.45	36.22
836.50			V	90.37	18.58	0.00	0.97	17.61	38.45	20.84
836.50	1.40	16QAM	H	79.33	4.40	0.00	0.97	3.43	38.45	35.02
836.50			V	91.59	19.80	0.00	0.97	18.83	38.45	19.62
836.50	3.00		H	78.53	3.60	0.00	0.97	2.63	38.45	35.82
836.50			V	90.77	18.98	0.00	0.97	18.01	38.45	20.44
836.50	5.00		H	78.13	3.20	0.00	0.97	2.23	38.45	36.22
836.50			V	90.37	18.58	0.00	0.97	17.61	38.45	20.84
836.50	10.00		H	77.39	2.46	0.00	0.97	1.49	38.45	36.96
836.50			V	89.63	17.84	0.00	0.97	16.87	38.45	21.58

LTE Band 7

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2535.00	5.00	QPSK	H	80.76	8.15	13.14	3.10	18.19	33.00	14.81
2535.00			V	80.58	9.43	13.14	3.10	19.47	33.00	13.53
2535.00	10.00		H	79.59	6.98	13.14	3.10	17.02	33.00	15.98
2535.00			V	79.48	8.33	13.14	3.10	18.37	33.00	14.63
2535.00	15.00		H	78.25	5.64	13.14	3.10	15.68	33.00	17.32
2535.00			V	78.02	6.87	13.14	3.10	16.91	33.00	16.09
2535.00	20.00		H	77.85	5.24	13.14	3.10	15.28	33.00	17.72
2535.00			V	77.68	6.53	13.14	3.10	16.57	33.00	16.43
2535.00	5.00	16QAM	H	80.68	8.07	13.14	3.10	18.11	33.00	14.89
2535.00			V	80.36	9.21	13.14	3.10	19.25	33.00	13.75
2535.00	10.00		H	79.36	6.75	13.14	3.10	16.79	33.00	16.21
2535.00			V	79.12	7.97	13.14	3.10	18.01	33.00	14.99
2535.00	15.00		H	78.25	5.64	13.14	3.10	15.68	33.00	17.32
2535.00			V	78.18	7.03	13.14	3.10	17.07	33.00	15.93
2535.00	20.00		H	78.39	5.78	13.14	3.10	15.82	33.00	17.18
2535.00			V	78.12	6.97	13.14	3.10	17.01	33.00	15.99

LTE Band 12

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
707.50	1.40	QPSK	H	80.67	3.81	0.00	0.94	2.87	34.77	31.90
707.50			V	92.56	18.14	0.00	0.94	17.20	34.77	17.57
707.50	3.00		H	80.27	3.41	0.00	0.94	2.47	34.77	32.30
707.50			V	91.72	17.30	0.00	0.94	16.36	34.77	18.41
707.50	5.00		H	79.59	2.73	0.00	0.94	1.79	34.77	32.98
707.50			V	91.23	16.81	0.00	0.94	15.87	34.77	18.90
707.50	10.00		H	79.16	2.30	0.00	0.94	1.36	34.77	33.41
707.50			V	90.68	16.26	0.00	0.94	15.32	34.77	19.45
707.50	1.40	16QAM	H	80.41	3.55	0.00	0.94	2.61	34.77	32.16
707.50			V	92.42	18.00	0.00	0.94	17.06	34.77	17.71
707.50	3.00		H	80.13	3.27	0.00	0.94	2.33	34.77	32.44
707.50			V	91.54	17.12	0.00	0.94	16.18	34.77	18.59
707.50	5.00		H	79.38	2.52	0.00	0.94	1.58	34.77	33.19
707.50			V	90.96	16.54	0.00	0.94	15.60	34.77	19.17
707.50	10.00		H	79.00	2.14	0.00	0.94	1.20	34.77	33.57
707.50			V	90.43	16.01	0.00	0.94	15.07	34.77	19.70

LTE Band 66

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1745.00	1.40	QPSK	H	87.15	13.21	10.94	2.53	21.62	30.00	8.38
1745.00			V	86.47	12.19	10.94	2.53	20.60	30.00	9.40
1745.00	3.00		H	86.21	12.27	10.94	2.53	20.68	30.00	9.32
1745.00			V	85.84	11.56	10.94	2.53	19.97	30.00	10.03
1745.00	5.00		H	86.63	12.69	10.94	2.53	21.10	30.00	8.90
1745.00			V	85.45	11.17	10.94	2.53	19.58	30.00	10.42
1745.00	10.00		H	86.96	13.02	10.94	2.53	21.43	30.00	8.57
1745.00			V	85.87	11.59	10.94	2.53	20.00	30.00	10.00
1745.00	15.00		H	86.33	12.39	10.94	2.53	20.80	30.00	9.20
1745.00			V	85.12	10.84	10.94	2.53	19.25	30.00	10.75
1745.00	20.00		H	86.26	12.32	10.94	2.53	20.73	30.00	9.27
1745.00			V	85.17	10.89	10.94	2.53	19.30	30.00	10.70
1745.00	1.40	16QAM	H	86.98	13.04	10.94	2.53	21.45	30.00	8.55
1745.00			V	85.93	11.65	10.94	2.53	20.06	30.00	9.94
1745.00	3.00		H	86.14	12.20	10.94	2.53	20.61	30.00	9.39
1745.00			V	85.83	11.55	10.94	2.53	19.96	30.00	10.04
1745.00	5.00		H	85.59	11.65	10.94	2.53	20.06	30.00	9.94
1745.00			V	85.56	11.28	10.94	2.53	19.69	30.00	10.31
1745.00	10.00		H	84.79	10.85	10.94	2.53	19.26	30.00	10.74
1745.00			V	84.63	10.35	10.94	2.53	18.76	30.00	11.24
1745.00	15.00		H	84.49	10.55	10.94	2.53	18.96	30.00	11.04
1745.00			V	84.29	10.01	10.94	2.53	18.42	30.00	11.58
1745.00	20.00		H	84.59	10.65	10.94	2.53	19.06	30.00	10.94
1745.00			V	84.21	9.93	10.94	2.53	18.34	30.00	11.66

Band 71

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
680.50	5.00	QPSK	H	80.88	3.38	0.00	0.90	2.48	34.77	32.29
680.50			V	92.56	17.48	0.00	0.90	16.58	34.77	18.19
680.50	10.00		H	79.87	2.37	0.00	0.90	1.47	34.77	33.30
680.50			V	91.92	16.84	0.00	0.90	15.94	34.77	18.83
680.50	15.00		H	79.71	2.21	0.00	0.90	1.31	34.77	33.46
680.50			V	91.68	16.60	0.00	0.90	15.70	34.77	19.07
680.50	20.00		H	79.36	1.86	0.00	0.90	0.96	34.77	33.81
680.50			V	90.64	15.56	0.00	0.90	14.66	34.77	20.11
680.50	5.00	16QAM	H	80.81	3.31	0.00	0.90	2.41	34.77	32.36
680.50			V	92.57	17.49	0.00	0.90	16.59	34.77	18.18
680.50	10.00		H	80.28	2.78	0.00	0.90	1.88	34.77	32.89
680.50			V	91.81	16.73	0.00	0.90	15.83	34.77	18.94
680.50	15.00		H	79.38	1.88	0.00	0.90	0.98	34.77	33.79
680.50			V	90.76	15.68	0.00	0.90	14.78	34.77	19.99
680.50	20.00		H	79.12	1.62	0.00	0.90	0.72	34.77	34.05
680.50			V	92.16	17.08	0.00	0.90	16.18	34.77	20.59

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level

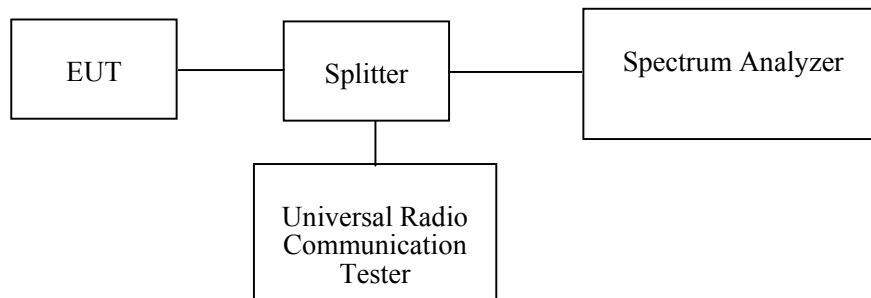
FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53- OCCUPIED BANDWIDTH**Applicable Standard**

FCC §2.1049, §22.917, §22.905, §24.238 and §27.53.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The 26 dB & 99% bandwidth was recorded.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
R&S	Spectrum Analyzer	FSP 38	100478	2020-05-09	2021-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41002201	Each Time	/
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each Time	/

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	27.1 °C~ 30 °C
Relative Humidity:	54 %~ 74 %
ATM Pressure:	99.8kPa ~100.8kPa
Tester:	James Chen
Test Date:	2020-06-05~2020-06-17

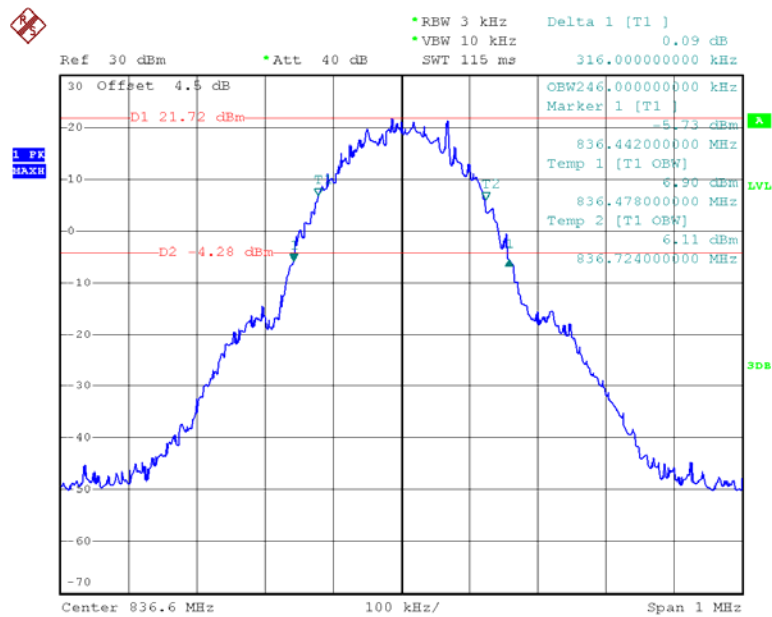
Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table and plots.

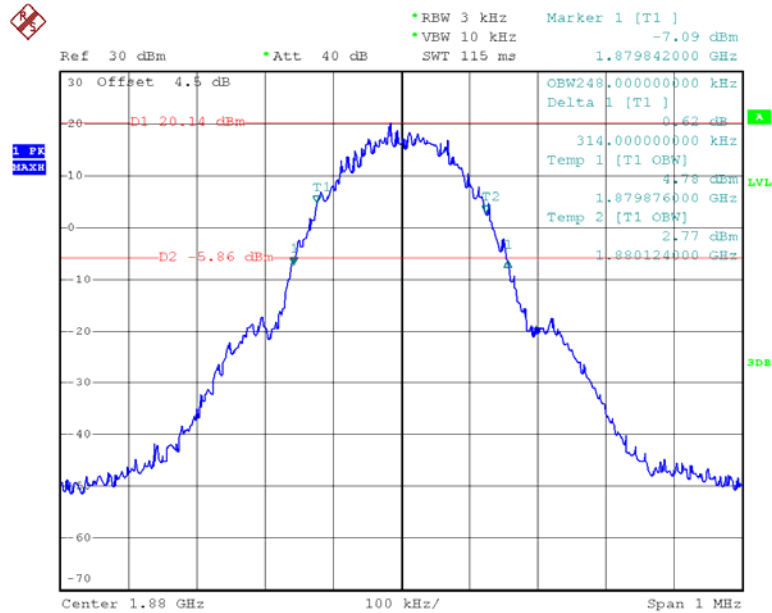
Band	Test Channel	Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Cellular	M	GSM	0.25	0.32
		EDGE	0.25	0.31
PCS		GSM	0.25	0.31
		EDGE	0.25	0.33
WCDMA Band II		Rel 99	4.20	4.81
		HSDPA	4.20	4.81
		HSUPA	4.20	4.76
WCDMA Band IV		Rel 99	4.16	4.75
		HSDPA	4.20	4.74
		HSUPA	4.18	4.74
WCDMA Band V		Rel 99	4.18	4.76
		HSDPA	4.18	4.74
		HSUPA	4.20	4.76

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.104	1.320
		16QAM	1.086	1.290
	3 MHz	QPSK	2.688	2.868
		16QAM	2.688	2.892
	5 MHz	QPSK	4.520	5.480
		16QAM	4.480	4.940
	10 MHz	QPSK	8.960	9.840
		16QAM	8.960	10.040
	15 MHz	QPSK	13.500	15.300
		16QAM	13.560	19.740
	20 MHz	QPSK	18.000	19.280
		16QAM	18.000	19.440
LTE Band 4	1.4 MHz	QPSK	1.098	1.326
		16QAM	1.110	1.338
	3 MHz	QPSK	2.688	2.880
		16QAM	2.688	2.880
	5 MHz	QPSK	4.520	5.000
		16QAM	4.500	4.960
	10 MHz	QPSK	9.000	9.600
		16QAM	8.960	9.600
	15 MHz	QPSK	13.560	14.940
		16QAM	13.560	14.820
	20 MHz	QPSK	18.000	19.520
		16QAM	18.080	19.280
LTE Band 5	1.4 MHz	QPSK	1.098	1.296
		16QAM	1.104	1.302
	3 MHz	QPSK	2.676	2.892
		16QAM	2.676	2.868
	5 MHz	QPSK	4.540	4.920
		16QAM	4.500	4.900
LTE Band 7	10 MHz	QPSK	8.960	9.680
		16QAM	8.960	9.520
	5 MHz	QPSK	4.520	4.940
		16QAM	4.500	4.880
	15 MHz	QPSK	13.560	14.880
		16QAM	13.500	14.760
LTE Band 7	20 MHz	QPSK	17.920	19.360
		16QAM	18.000	19.360

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 12	1.4 MHz	QPSK	1.110	1.344
		16QAM	1.104	1.320
	3 MHz	QPSK	2.688	2.880
		16QAM	2.688	2.892
	5 MHz	QPSK	4.560	5.280
		16QAM	4.540	5.300
	10 MHz	QPSK	9.080	10.160
		16QAM	9.039	10.080
LTE Band 66	1.4 MHz	QPSK	1.098	1.308
		16QAM	1.110	1.326
	3 MHz	QPSK	2.688	2.880
		16QAM	2.688	2.880
	5 MHz	QPSK	4.520	5.240
		16QAM	4.520	5.220
	10 MHz	QPSK	8.960	10.040
		16QAM	8.960	9.840
	15 MHz	QPSK	13.560	15.360
		16QAM	13.500	15.240
LTE Band 71	5 MHz	QPSK	4.535	5.224
		16QAM	4.535	5.176
	10 MHz	QPSK	9.006	10.077
		16QAM	8.942	9.660
	15 MHz	QPSK	13.606	15.285
		16QAM	13.606	15.141
	20 MHz	QPSK	18.013	19.654
		16QAM	18.077	19.949

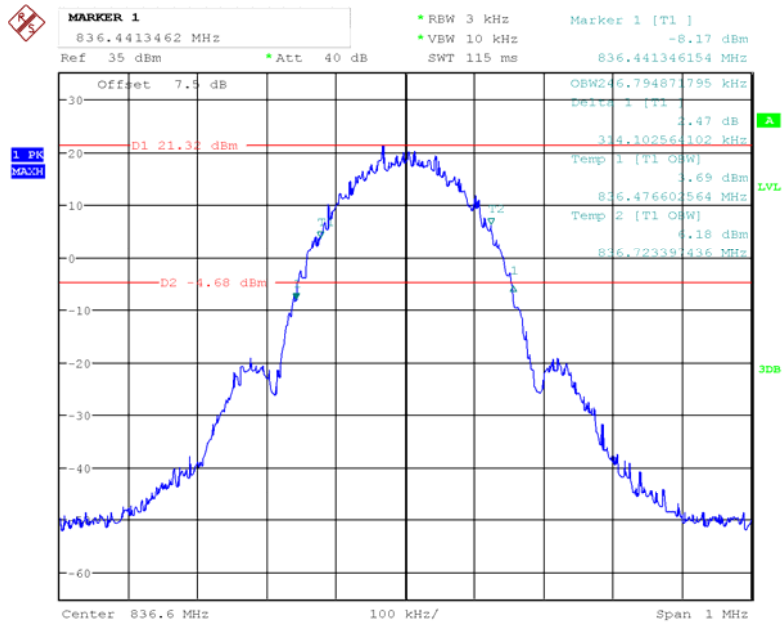
GSM Cellular 850

Date: 9.JUN.2020 01:20:36

GSM PCS 1900

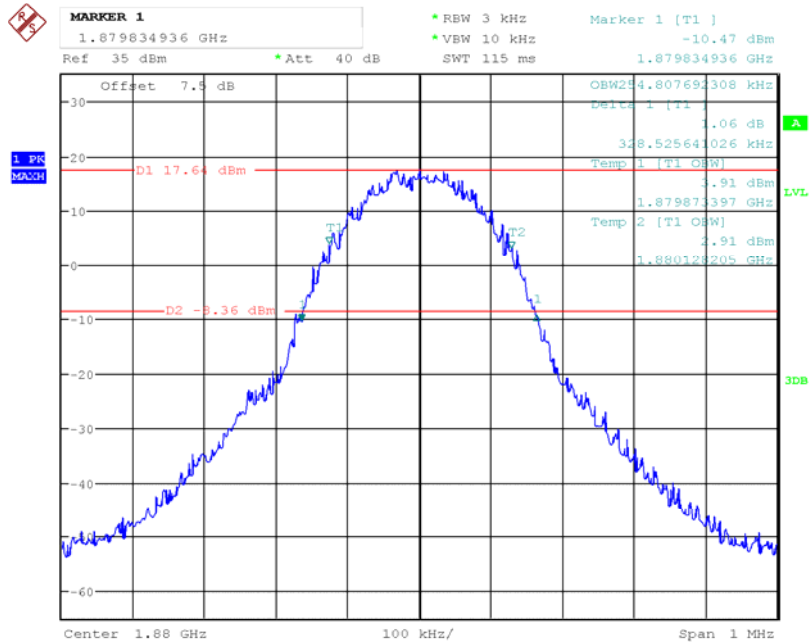
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EDGE Cellular 850



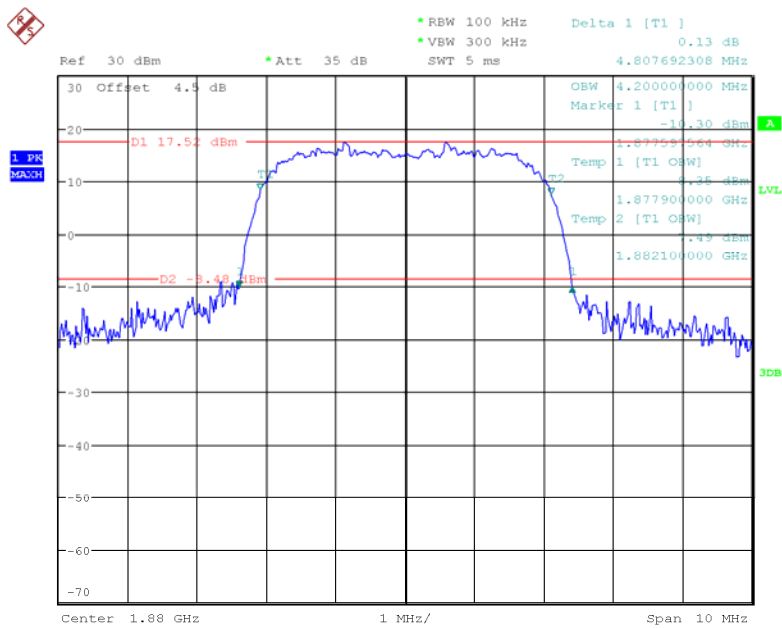
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EDGE PCS 1900



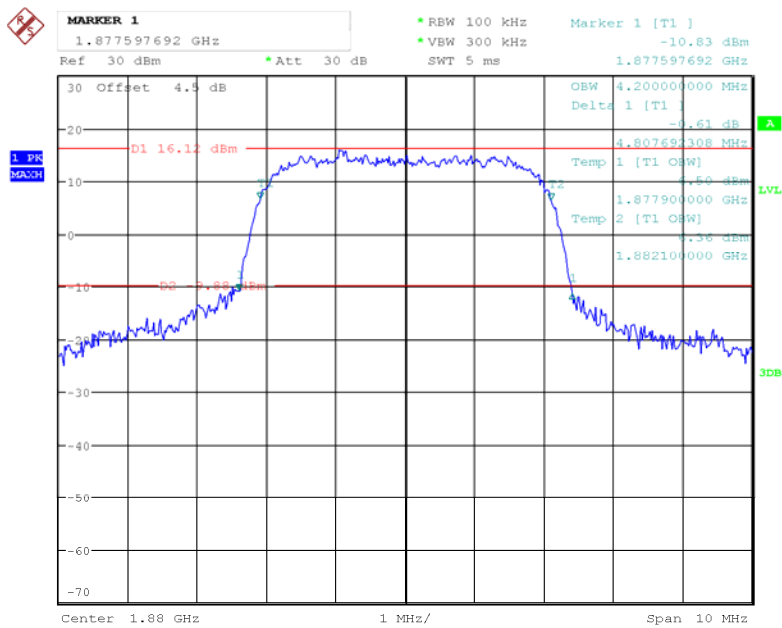
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WCDMA Band 2 Rel 99



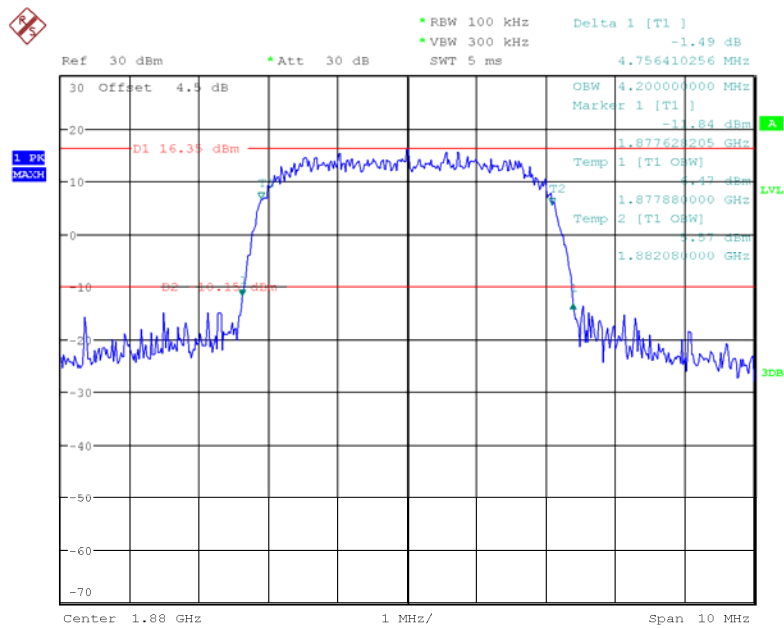
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WCDMA Band 2 HSDPA



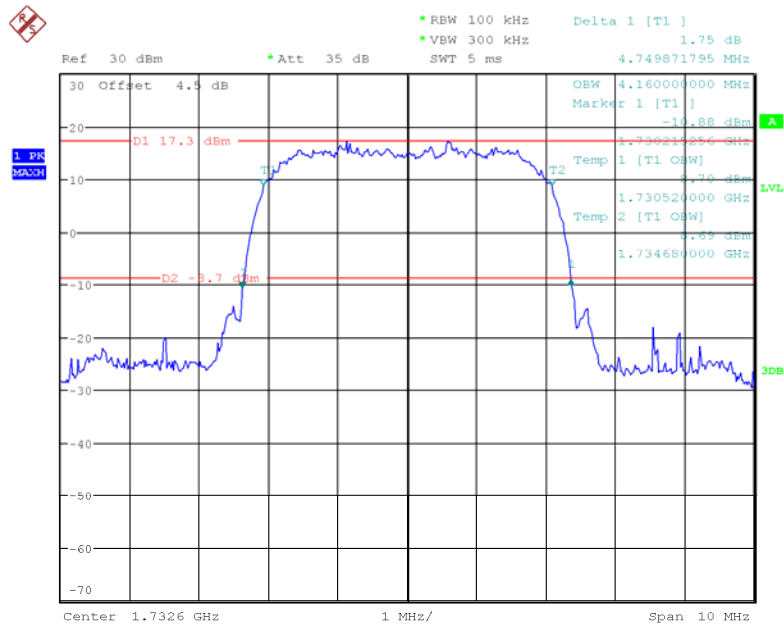
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WCDMA Band 2 HSUPA



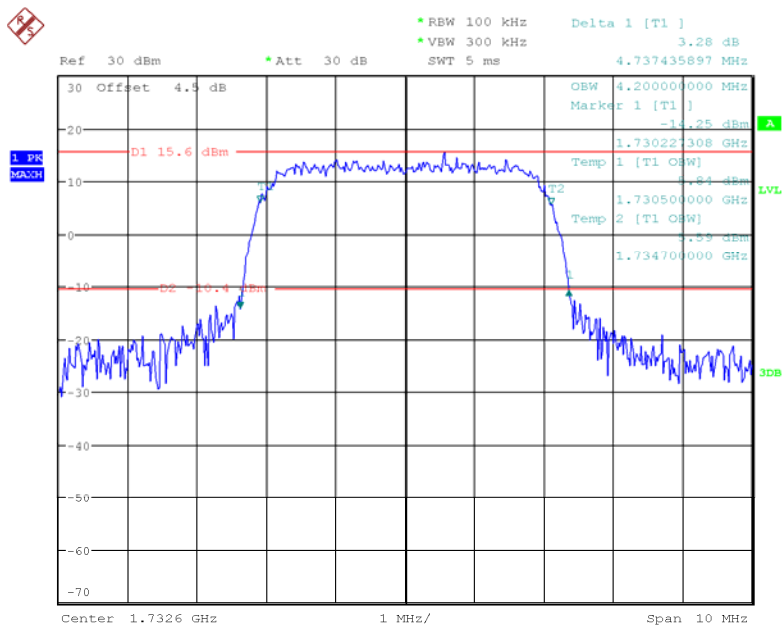
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WCDMA Band 4 Rel 99



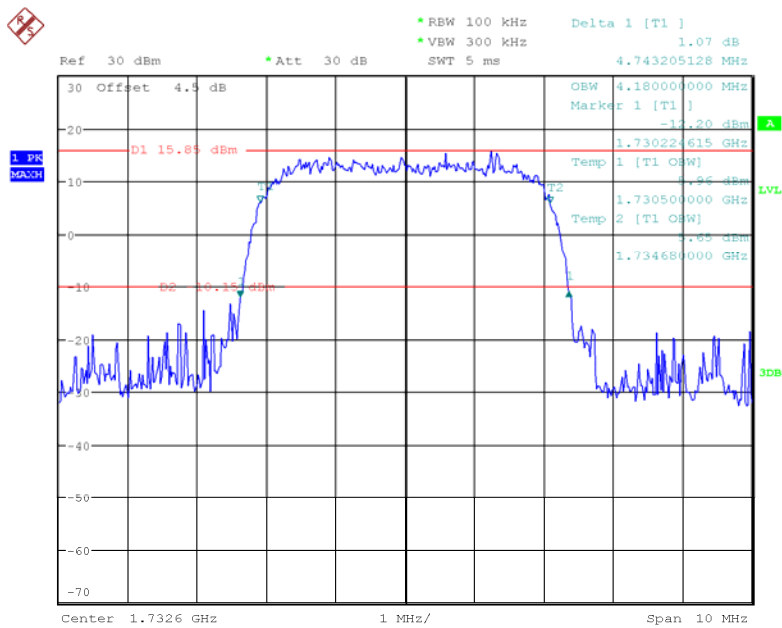
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WCDMA Band 4 HSDPA



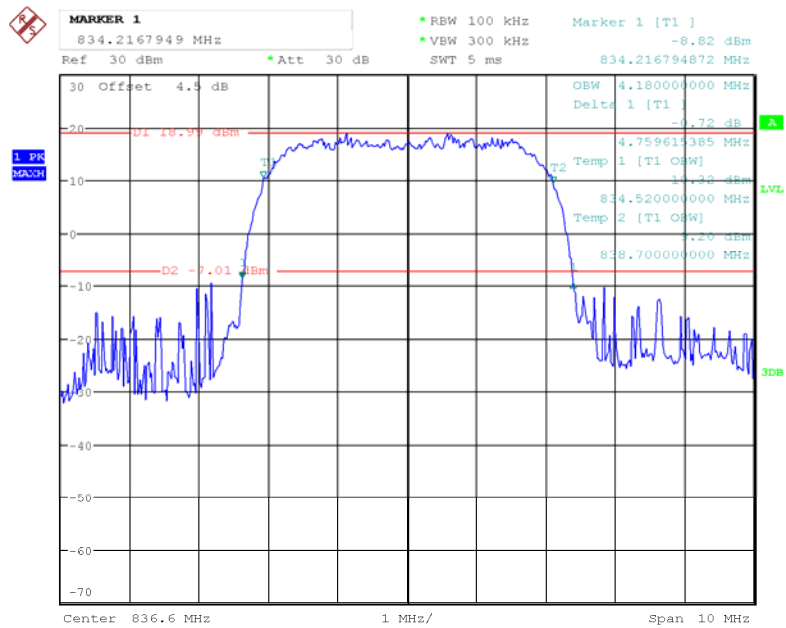
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WCDMA Band 4 HSUPA



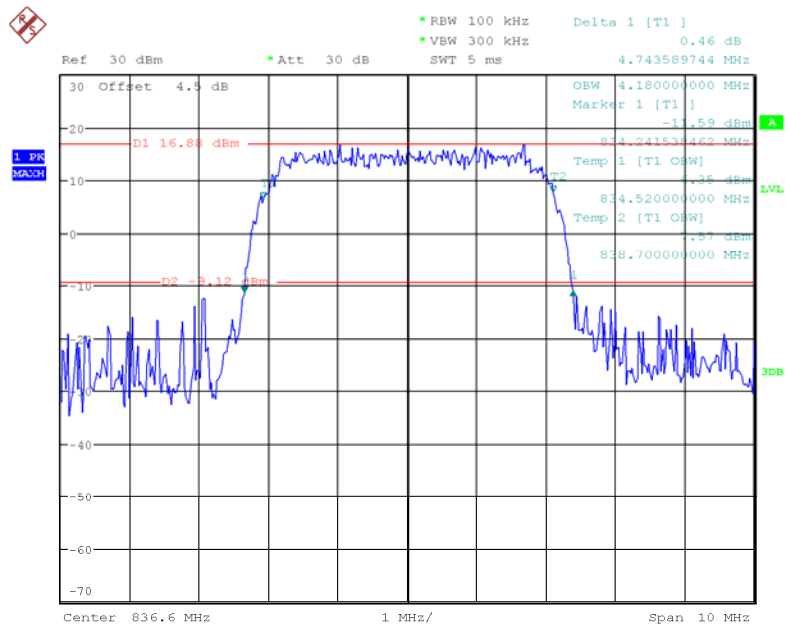
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WCDMA Band 5 Rel 99



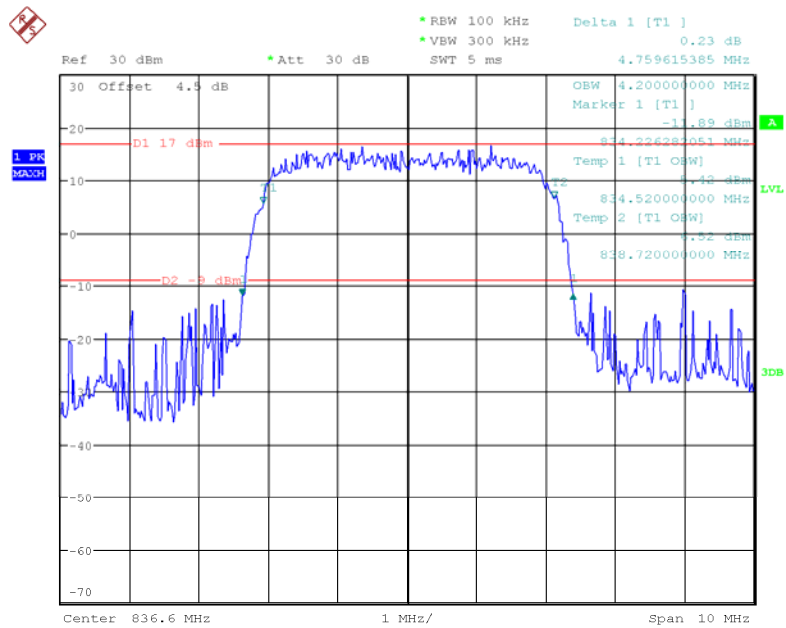
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WCDMA Band 5 HSDPA



Date: 7.JUN.2020 17:27:08

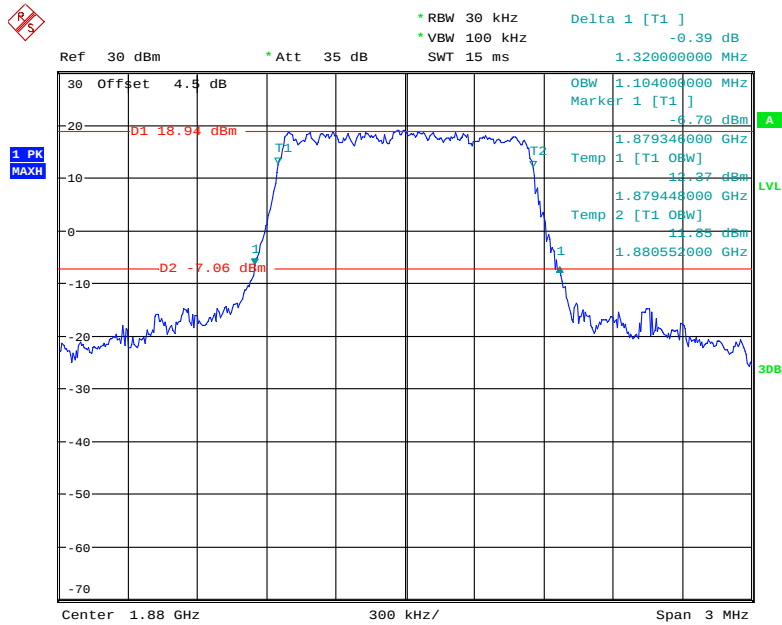
WCDMA Band 5 HSUPA



Date: 7.JUN.2020 17:34:16

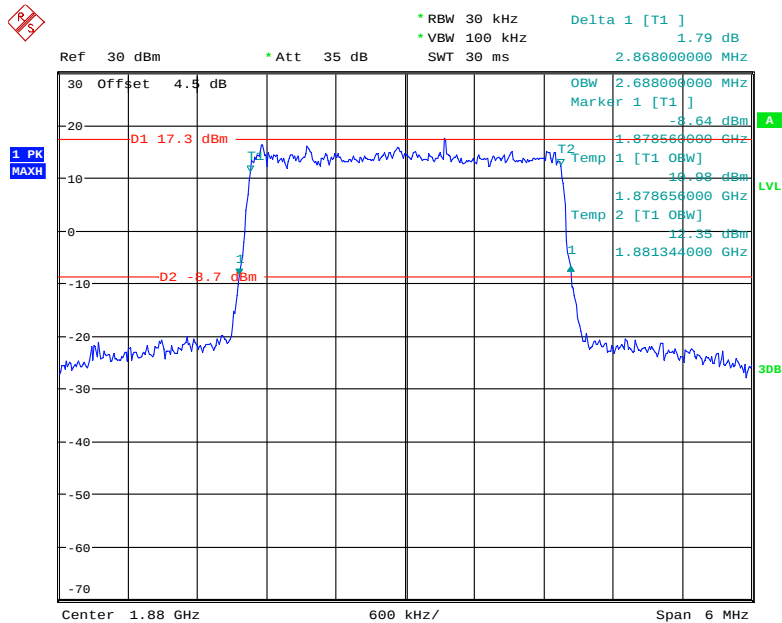
LTE Band 2

QPSK_1.4 MHz



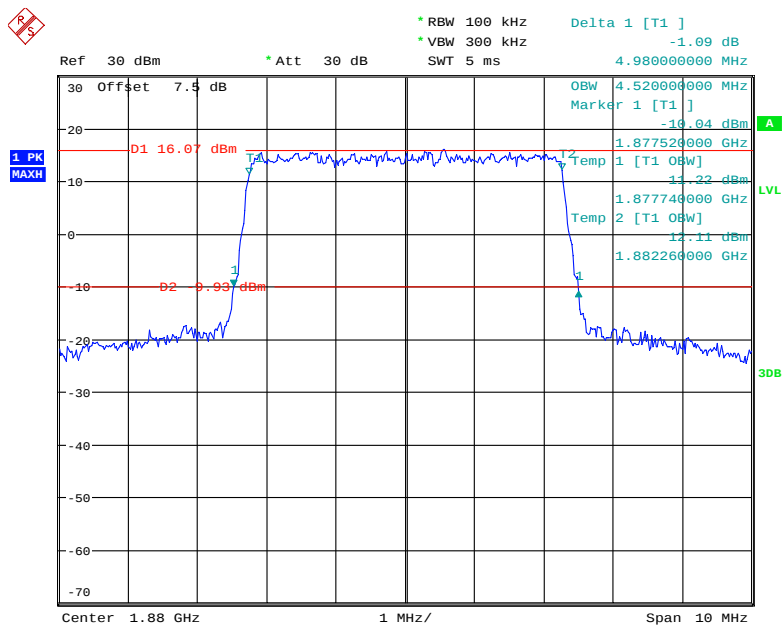
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QPSK_3 MHz



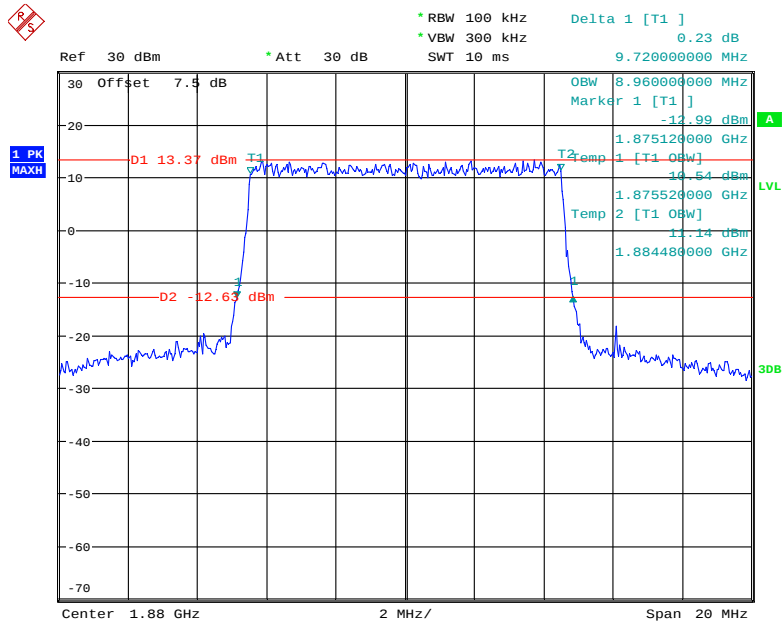
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QPSK_5 MHz



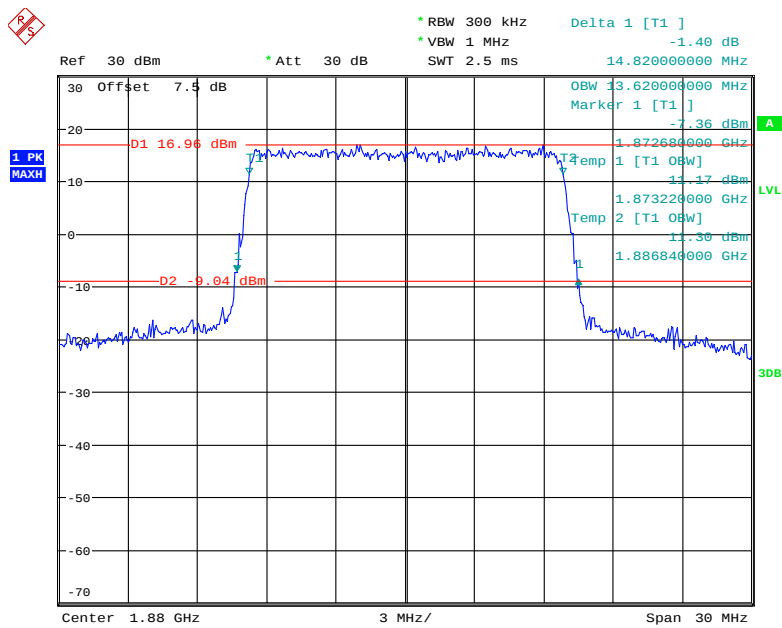
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QPSK_10 MHz



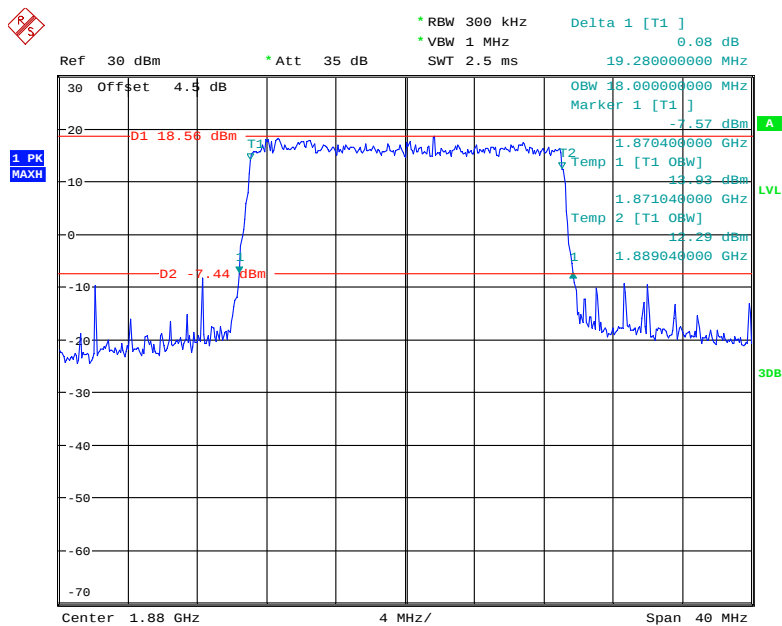
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QPSK_15 MHz



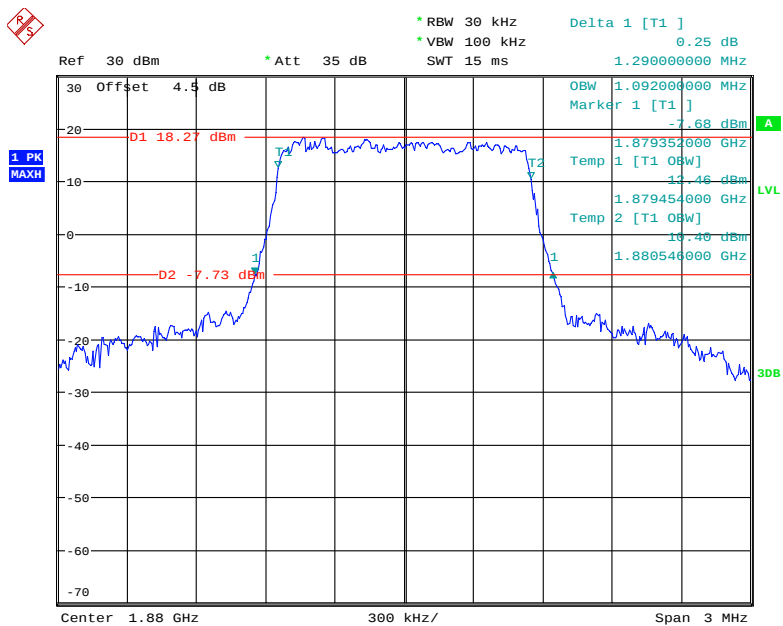
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QPSK_20 MHz



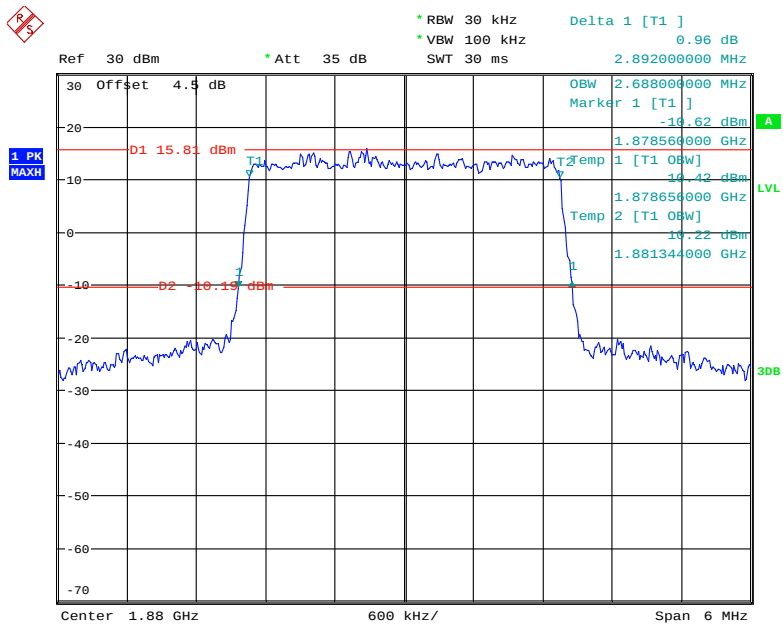
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16QAM_1.4 MHz



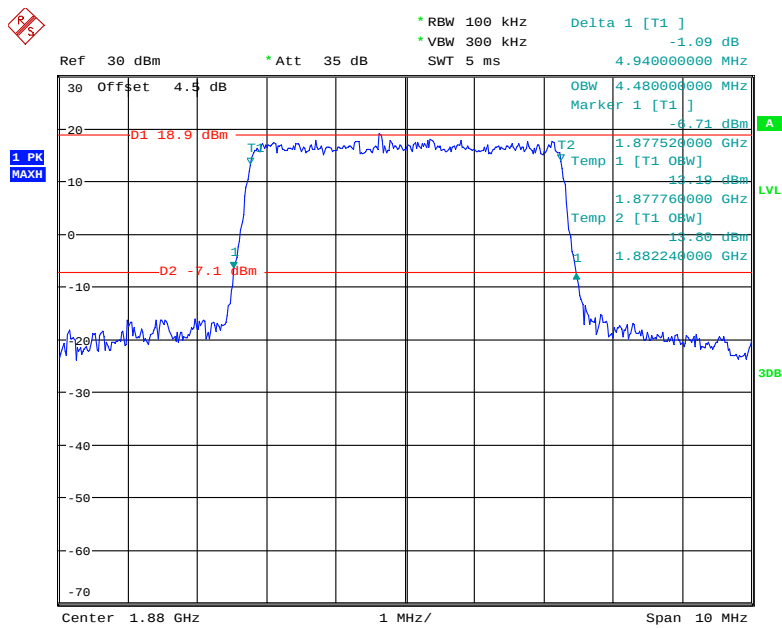
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16QAM_3 MHz



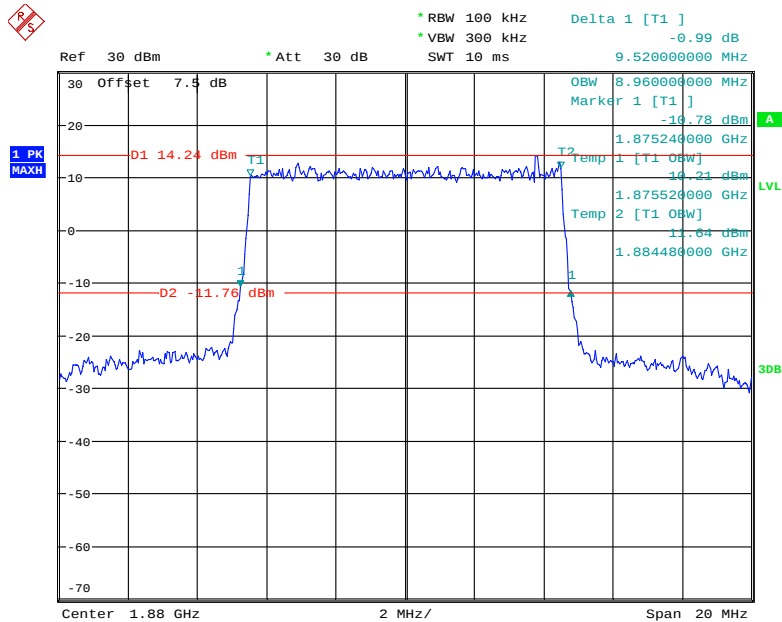
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16QAM_5 MHz



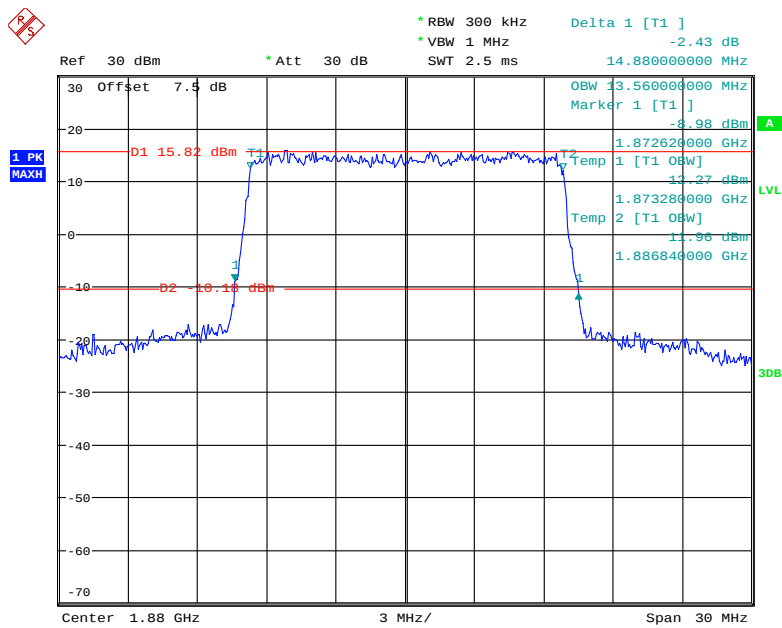
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16QAM_10 MHz



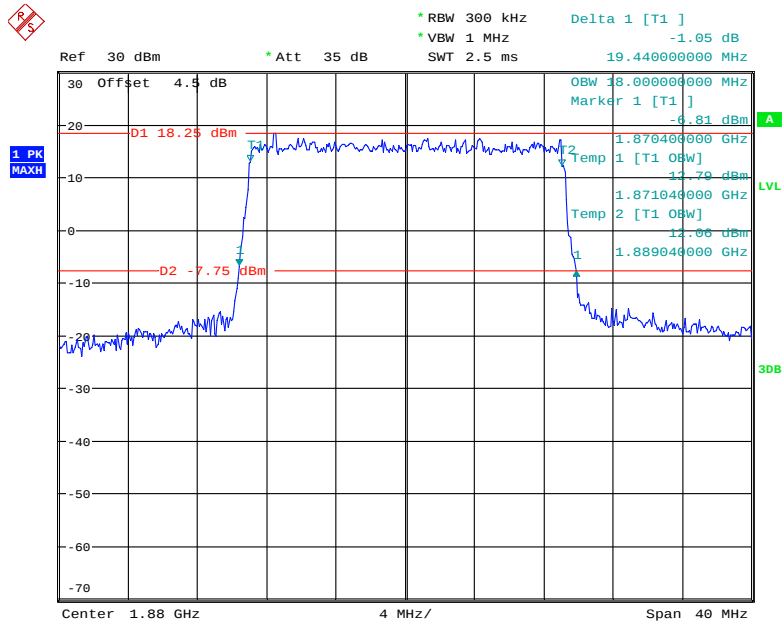
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16QAM_15 MHz



Date: 10.JUN.2020 01:02:20

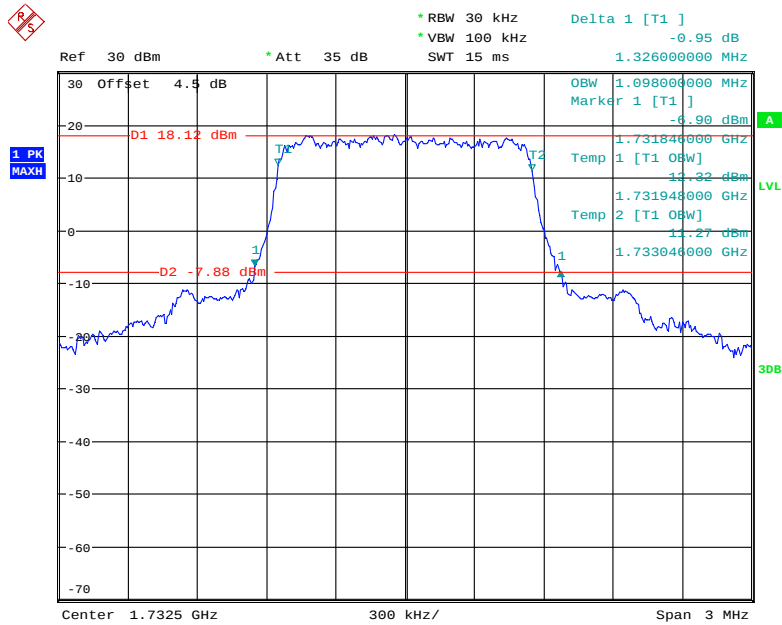
16QAM_20 MHz



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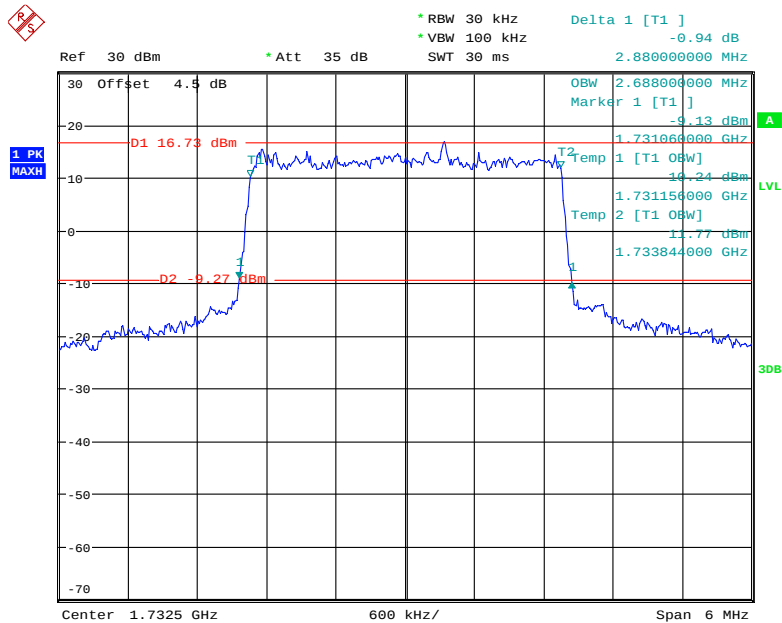
LTE Band 4

QPSK_1.4 MHz



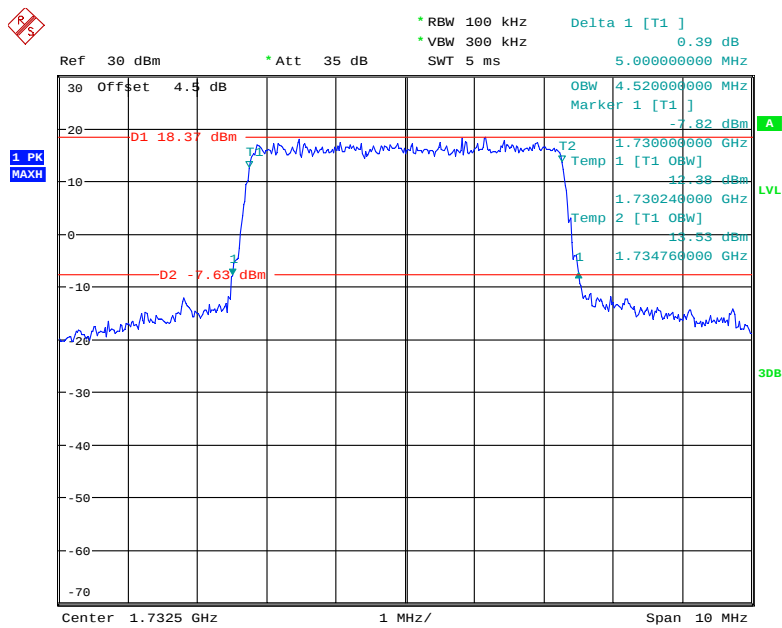
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QPSK_3 MHz



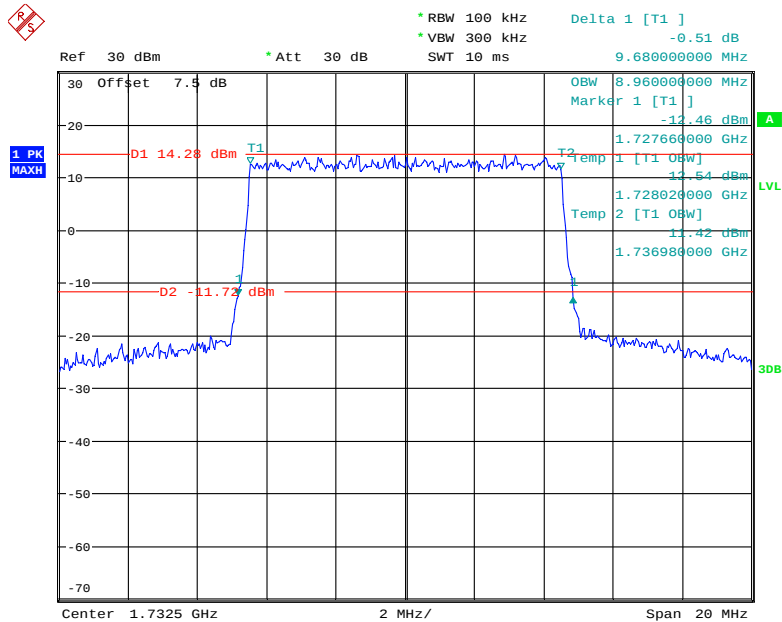
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QPSK_5 MHz



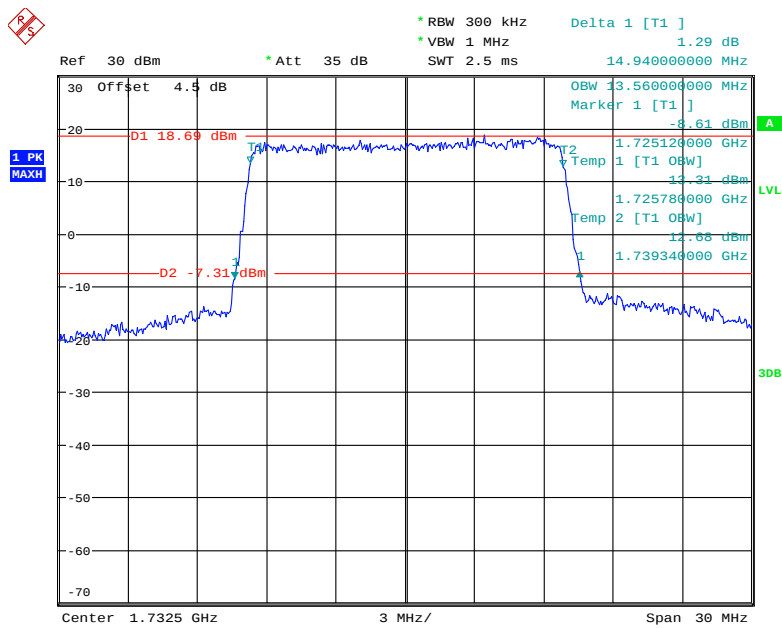
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QPSK_10 MHz



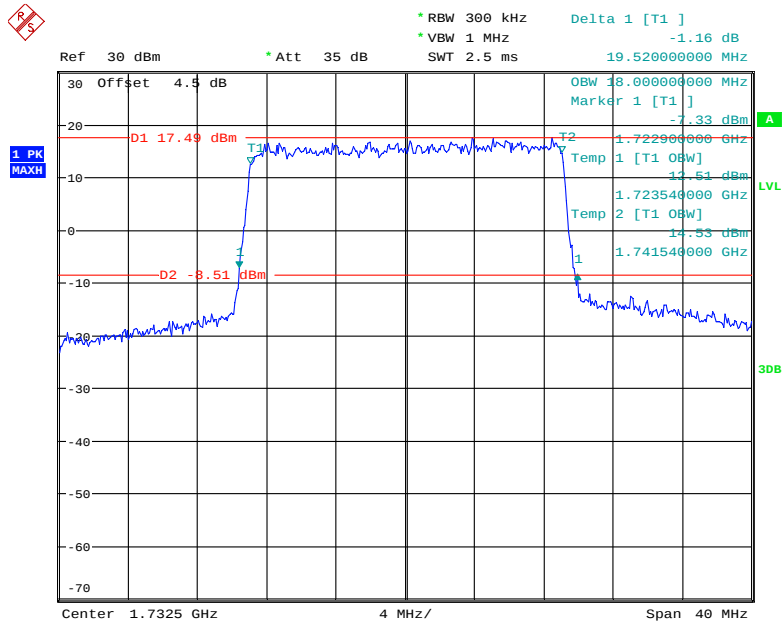
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QPSK_15 MHz



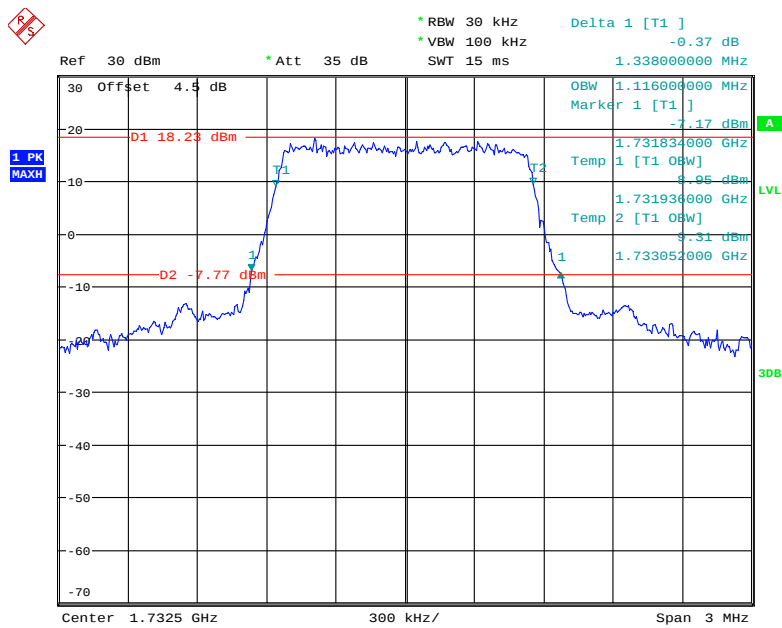
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QPSK_20 MHz



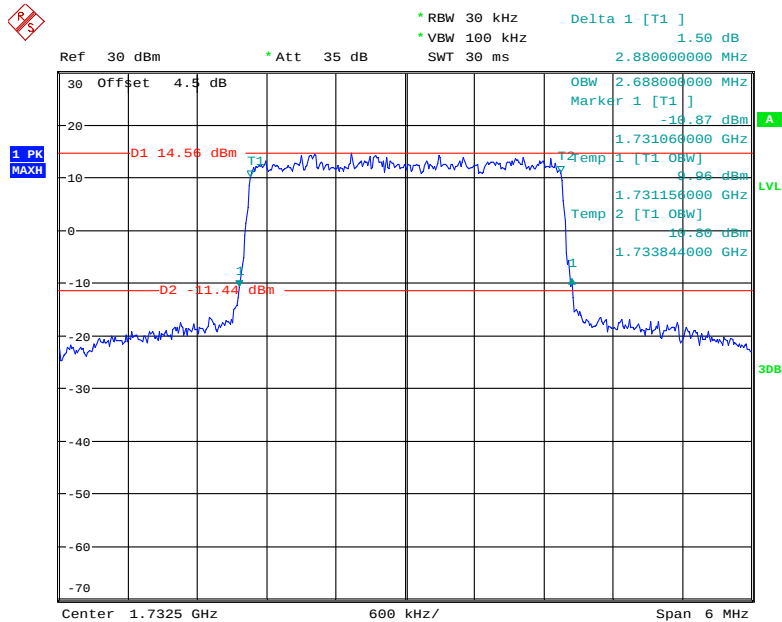
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16QAM_1.4 MHz



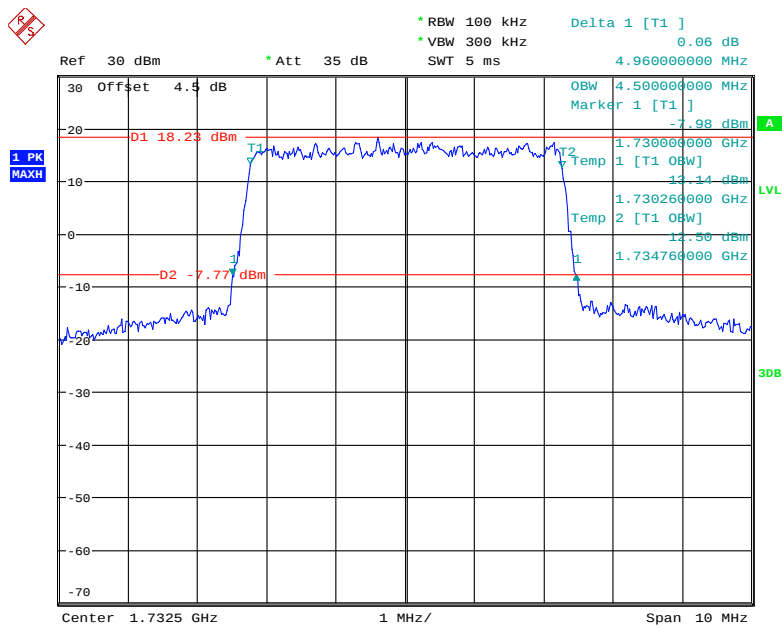
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16QAM_3 MHz



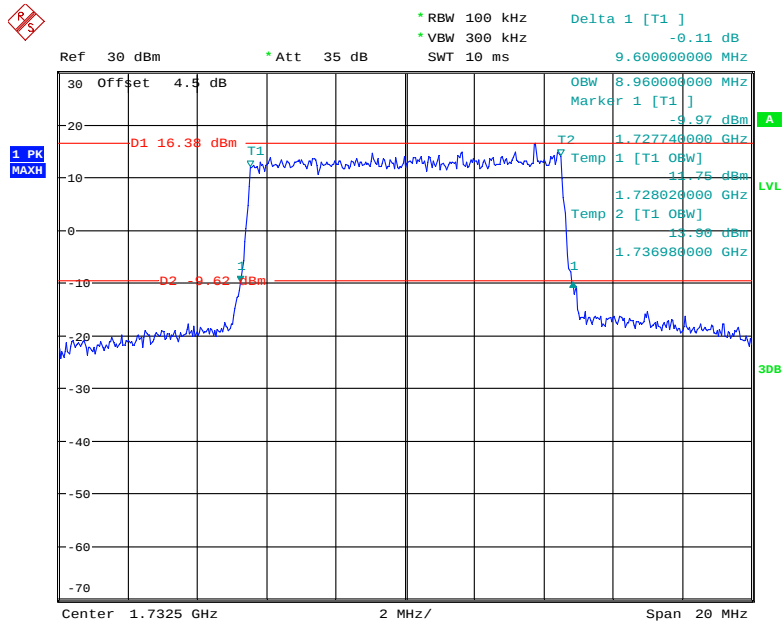
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16QAM_5 MHz



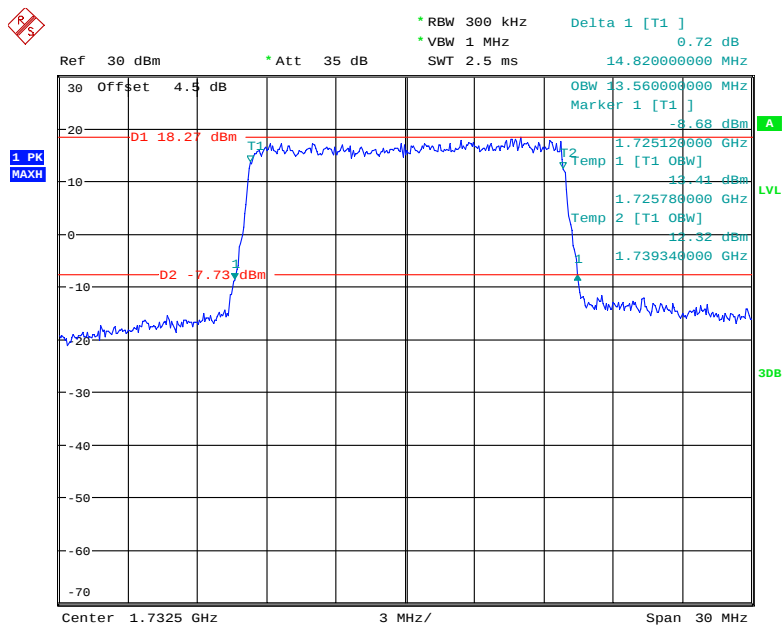
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16QAM_10 MHz



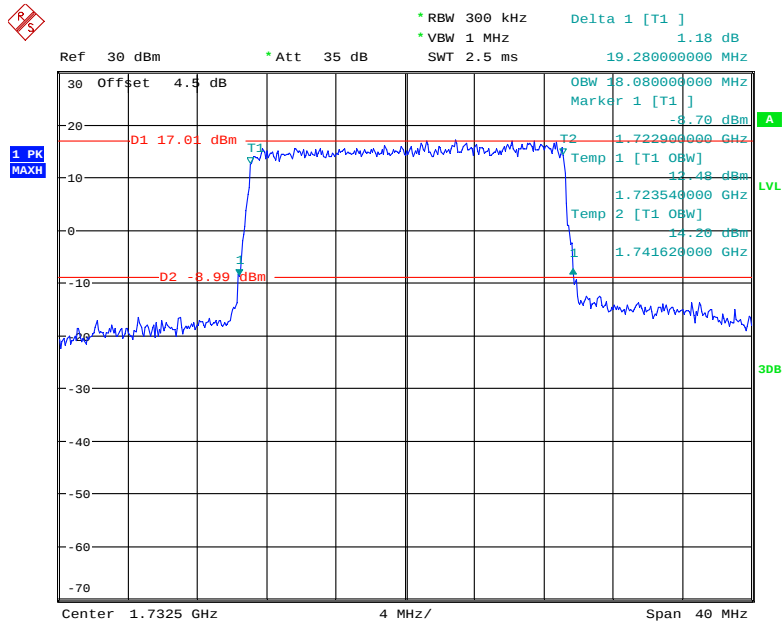
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16QAM_15 MHz



Date: 6.JUN.2020 00:18:43

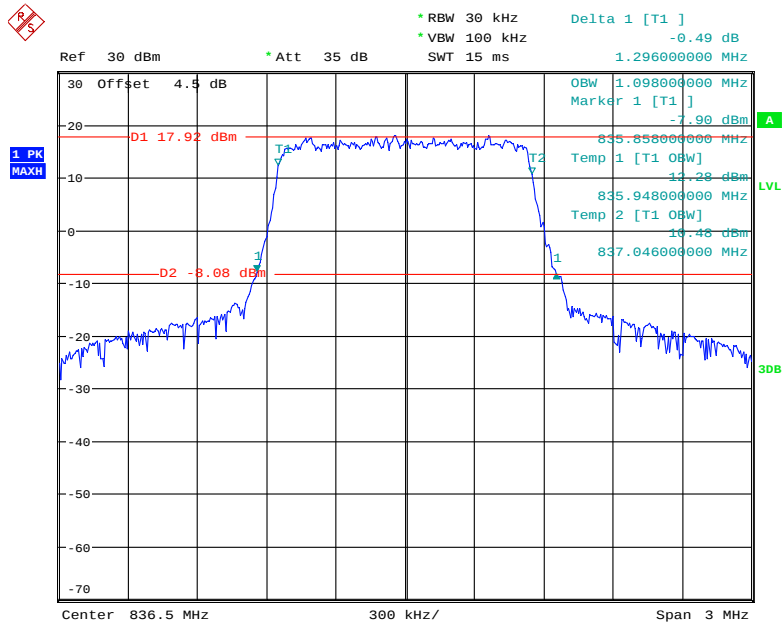
16QAM_20 MHz



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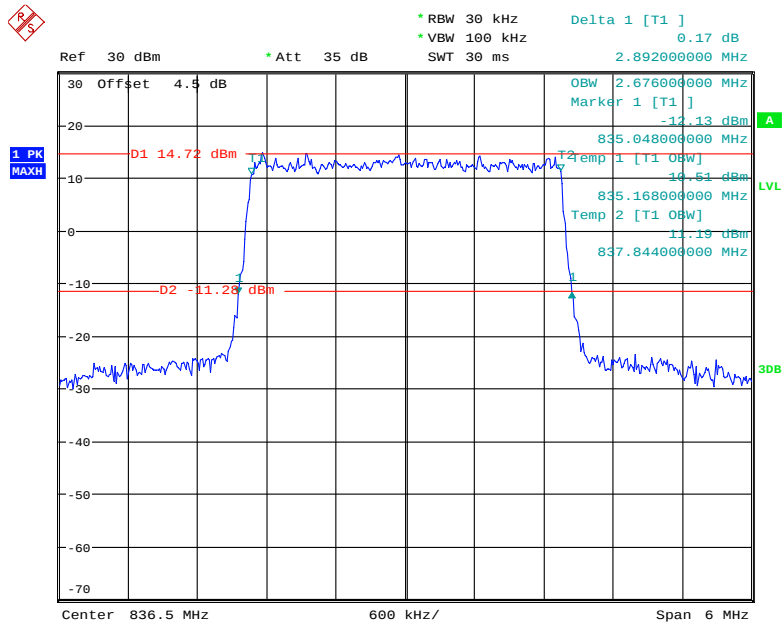
LTE Band 5:

QPSK_1.4 MHz



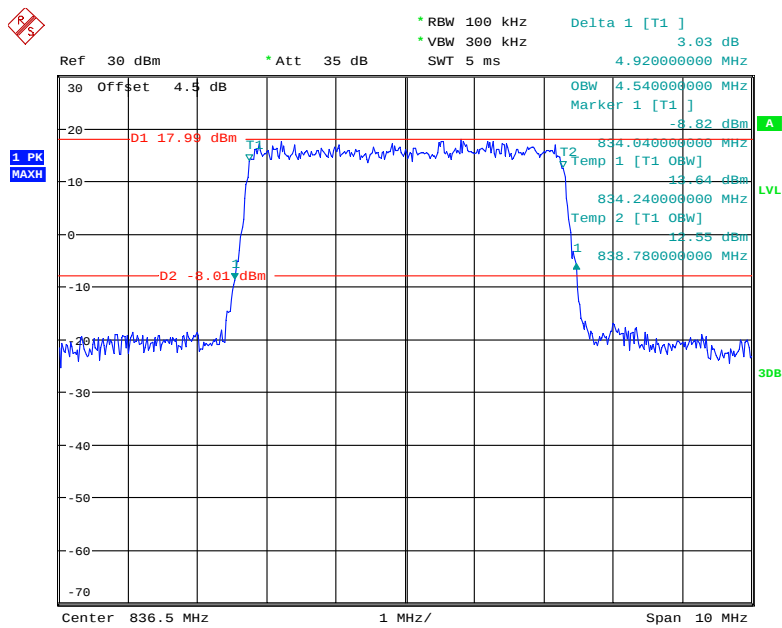
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QPSK_3 MHz



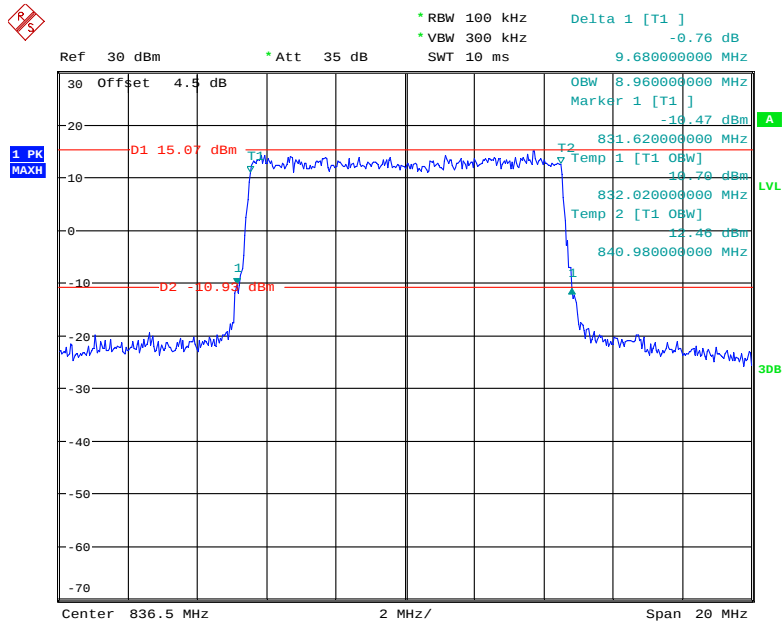
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QPSK_5 MHz



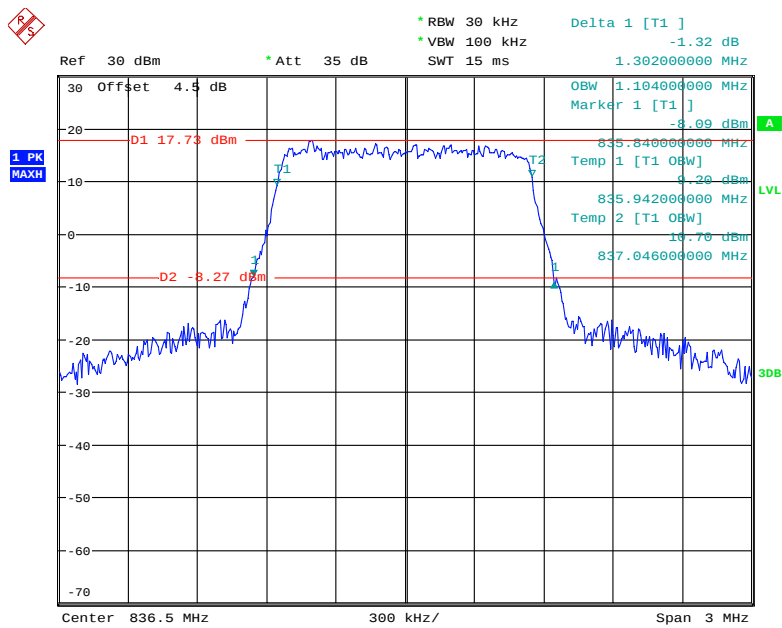
Date: 6.JUN.2020 00:21:43

QPSK_10 MHz



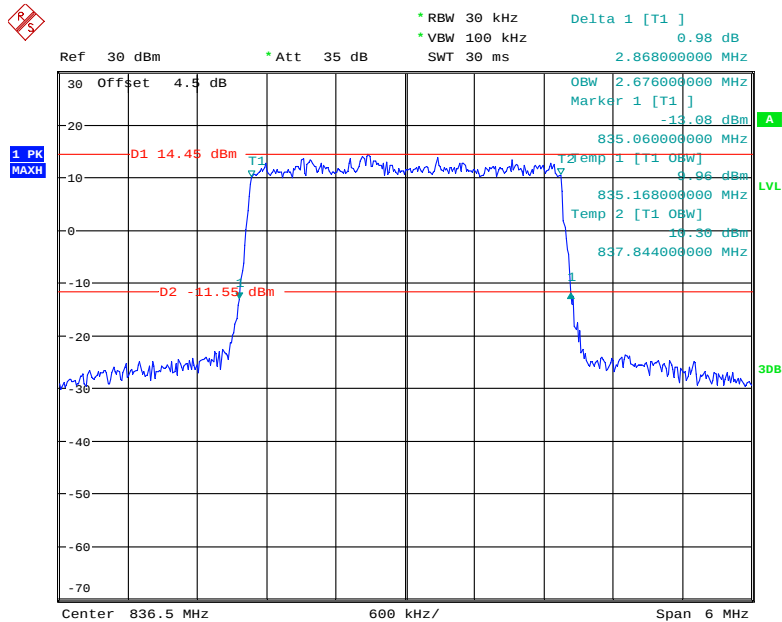
Date: 6.JUN.2020 00:22:32

16QAM_1.4 MHz



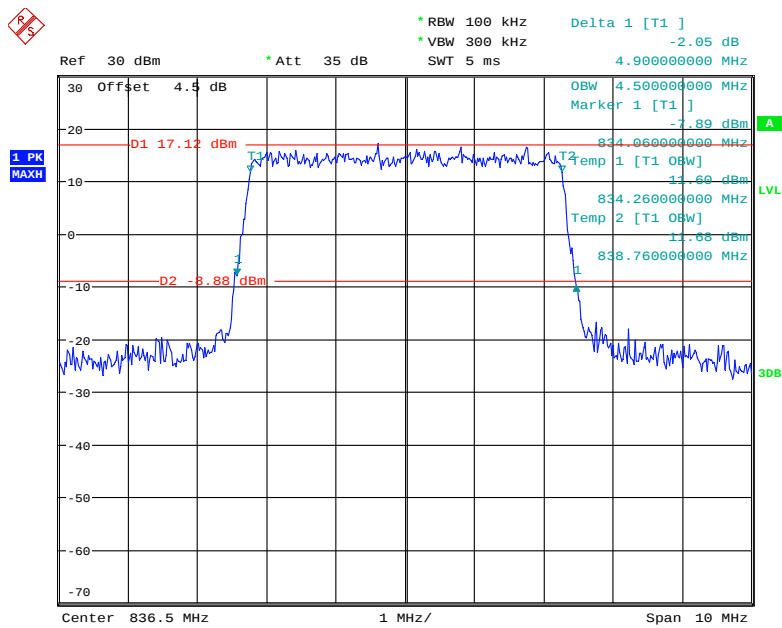
Date: 6.JUN.2020 00:20:31

16QAM_3 MHz



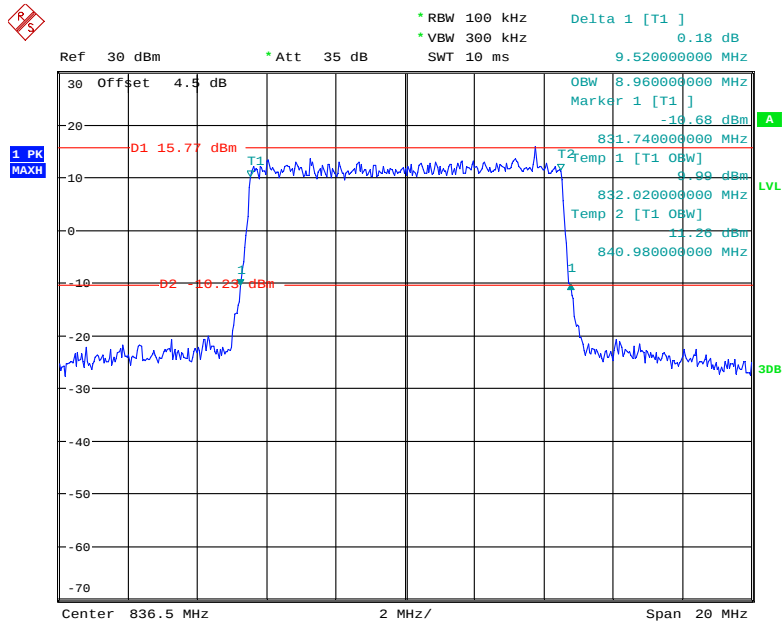
Date: 6.JUN.2020 00:21:13

16QAM_5 MHz



Date: 6.JUN.2020 00:22:04

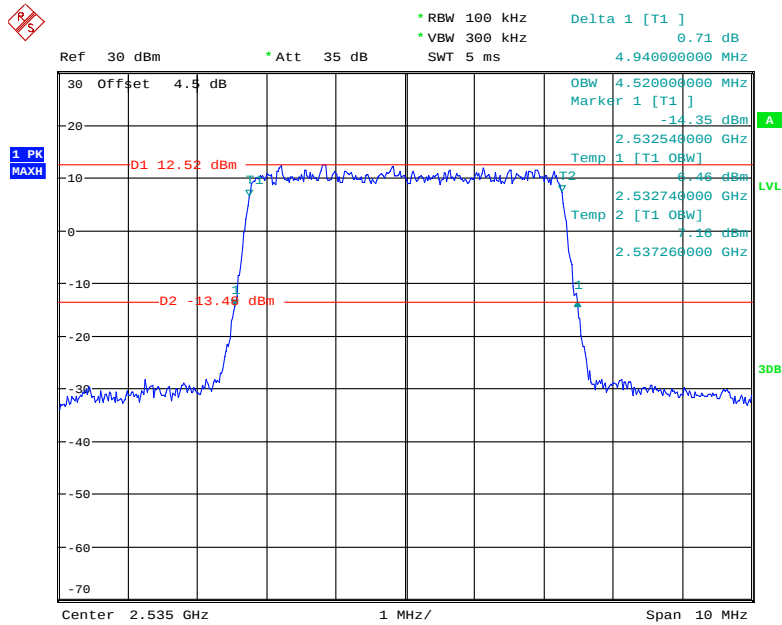
16QAM_10 MHz



Date: 6.JUN.2020 00:22:54

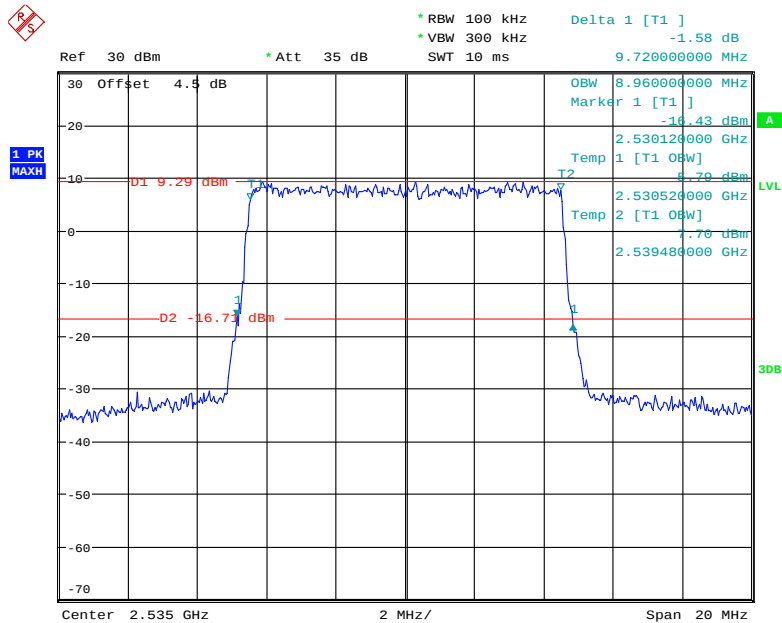
LTE Band 7:

QPSK_5 MHz



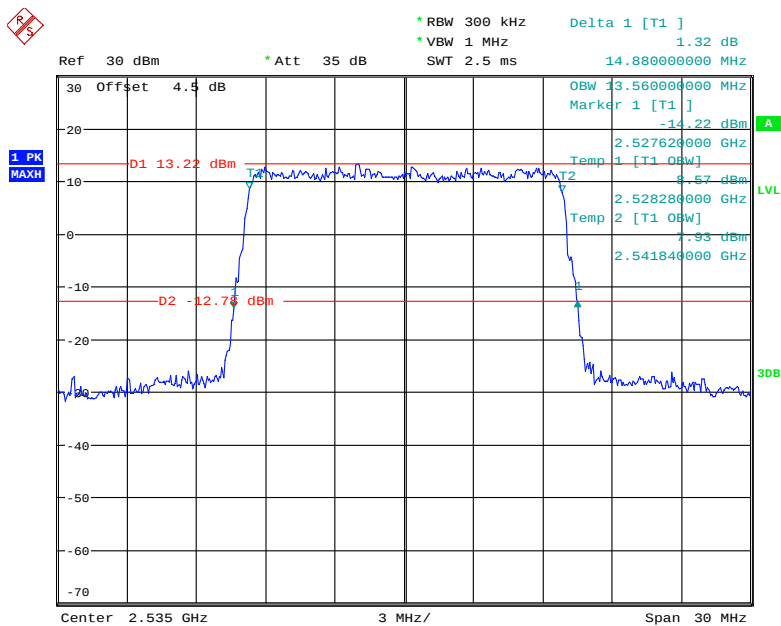
Date: 6.JUN.2020 00:23:19

QPSK_10 MHz



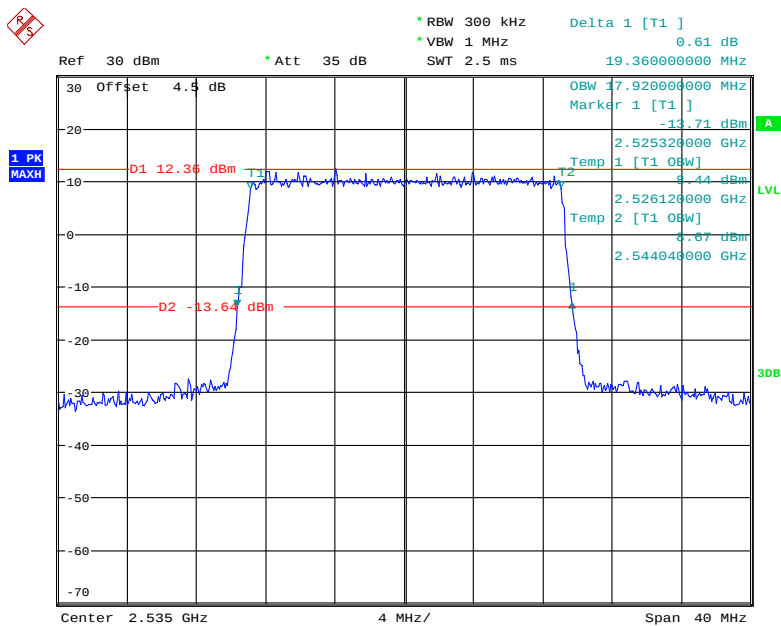
Date: 6.JUN.2020 00:24:05

QPSK_15 MHz



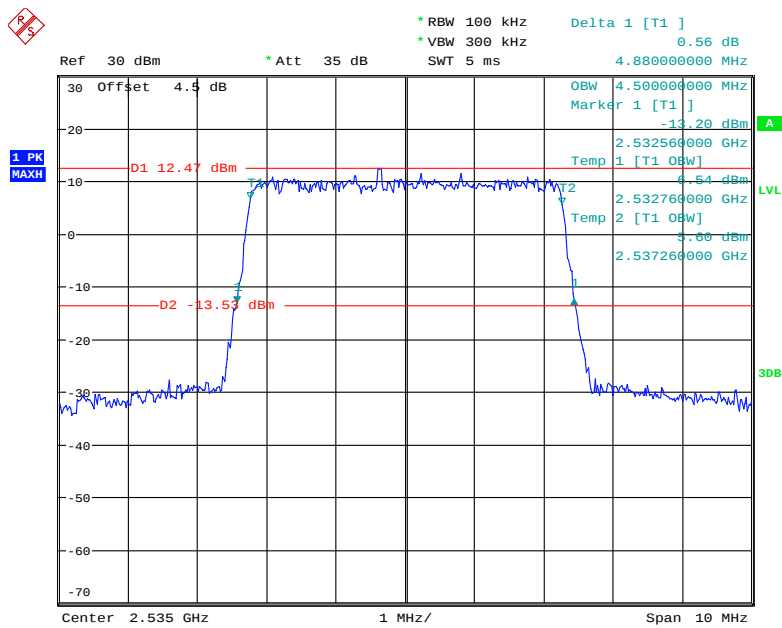
Date: 6.JUN.2020 00:24:54

QPSK_20 MHz



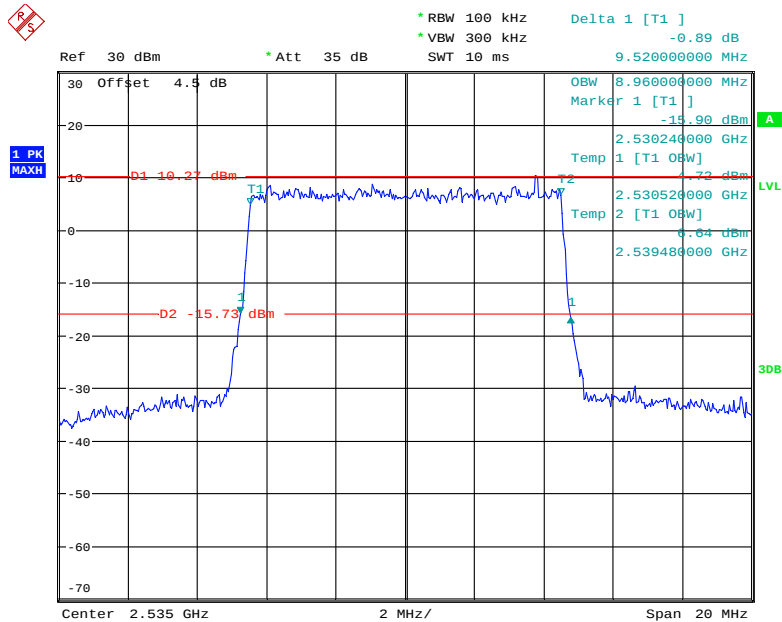
Date: 6.JUN.2020 00:25:46

16QAM_5 MHz



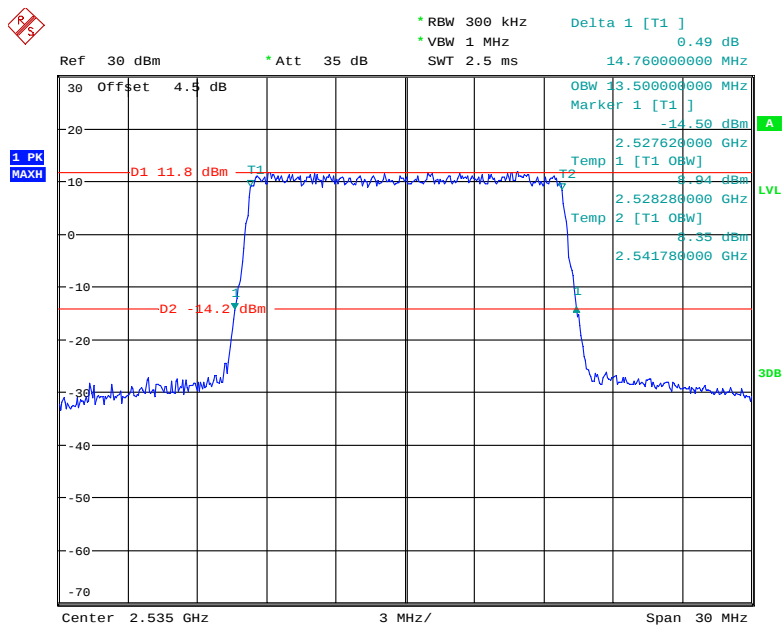
Date: 6.JUN.2020 00:23:40

16QAM_10 MHz



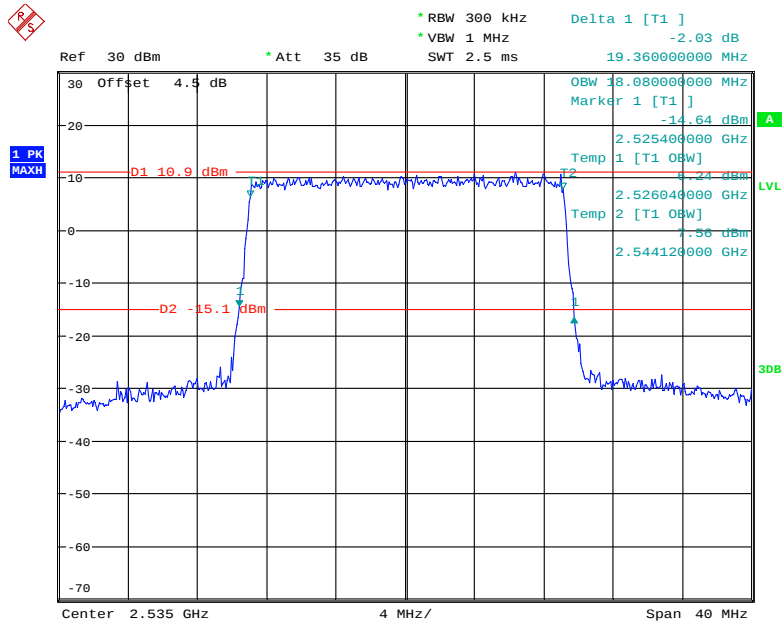
Date: 6.JUN.2020 00:24:27

16QAM_15 MHz

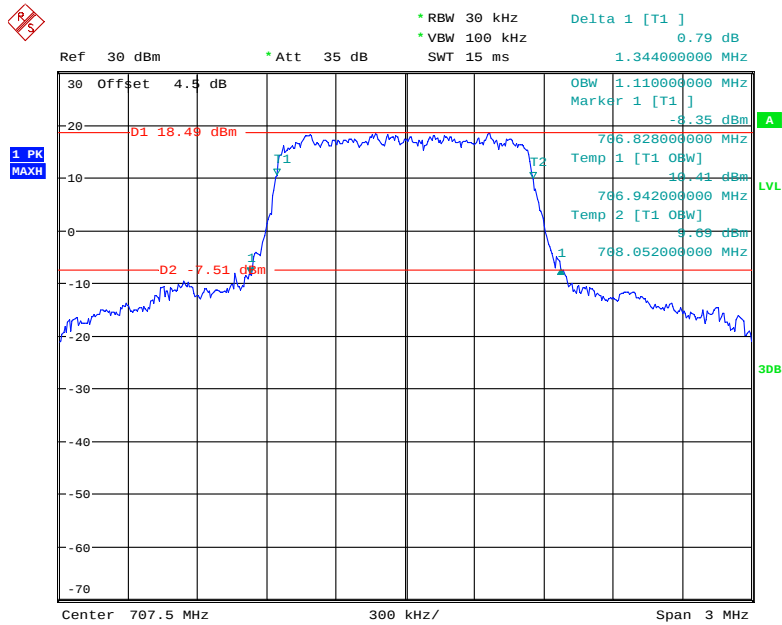


Date: 6.JUN.2020 00:25:19

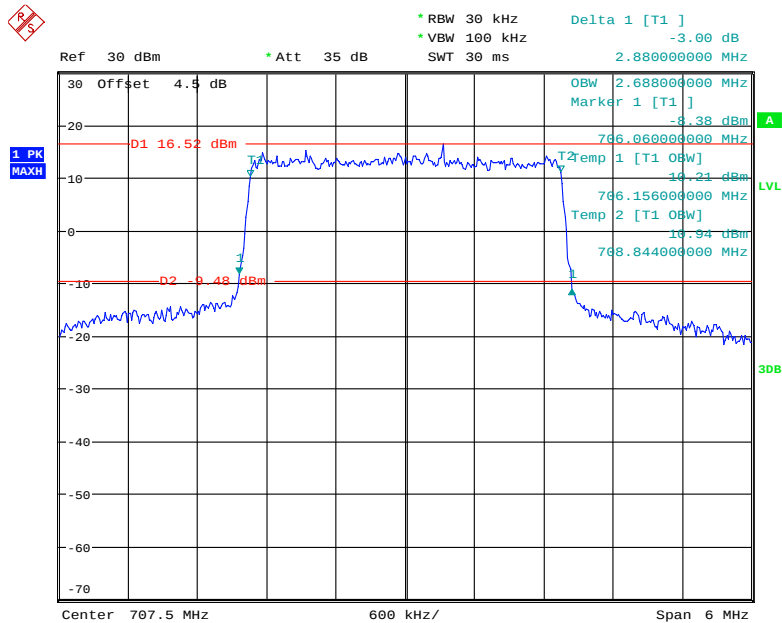
16QAM_20 MHz



Date: 6.JUN.2020 00:26:11

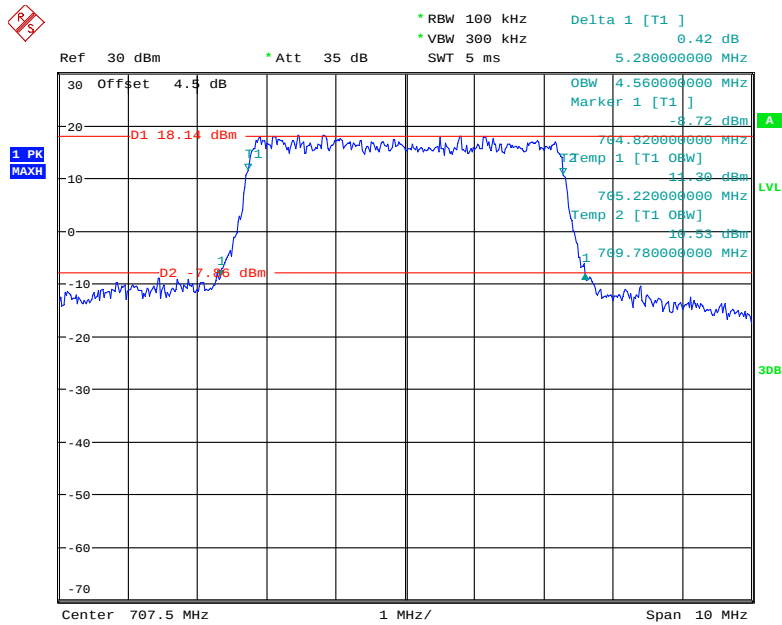
LTE Band 12:**QPSK_1.4 MHz**

Date: 6.JUN.2020 00:26:39

QPSK_3 MHz

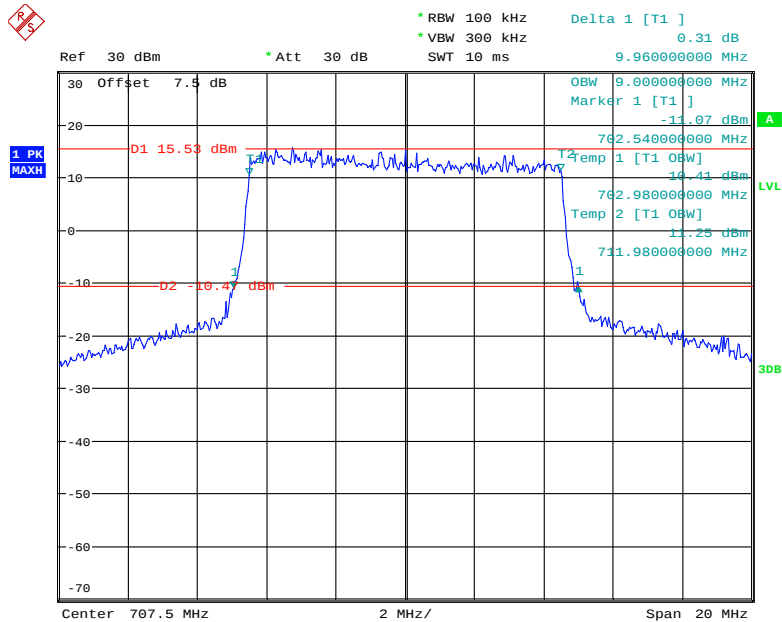
Date: 6.JUN.2020 00:27:24

QPSK_5 MHz



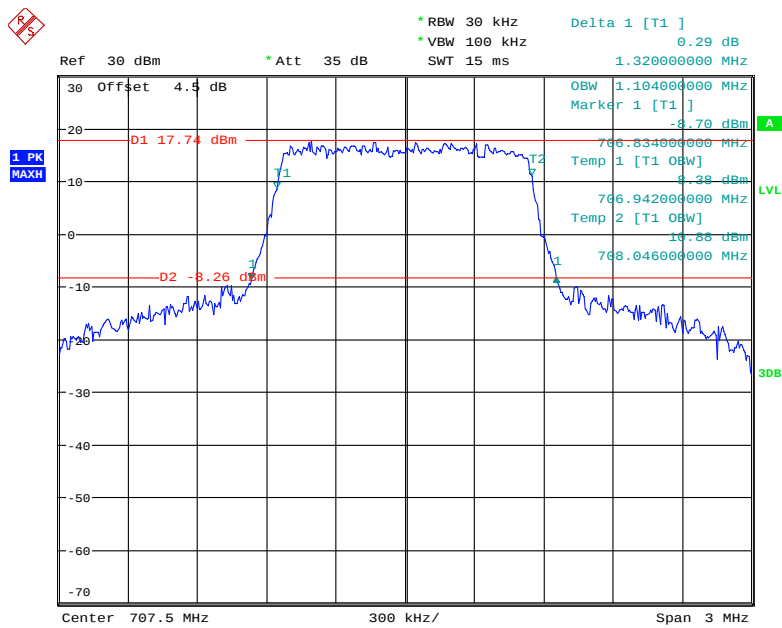
Date: 6.JUN.2020 00:28:15

QPSK_10 MHz



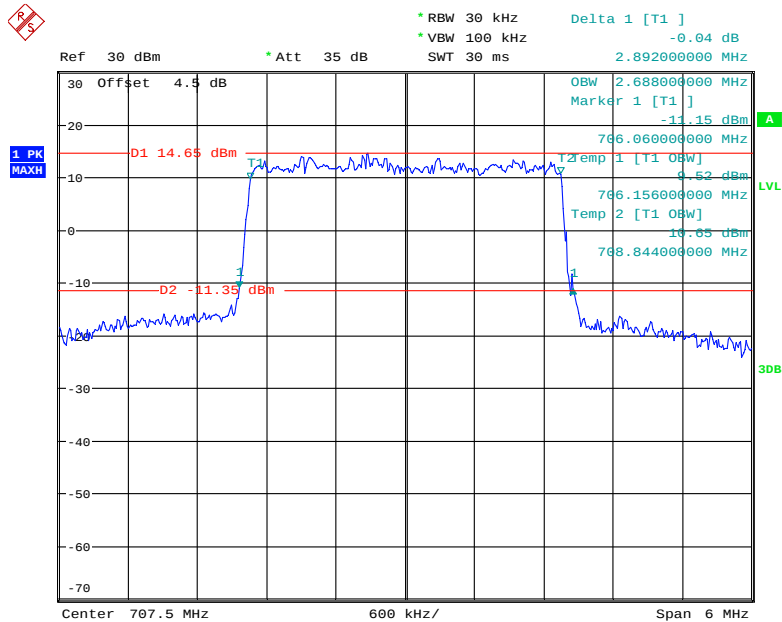
Date: 10.JUN.2020 01:05:05

16QAM_1.4 MHz



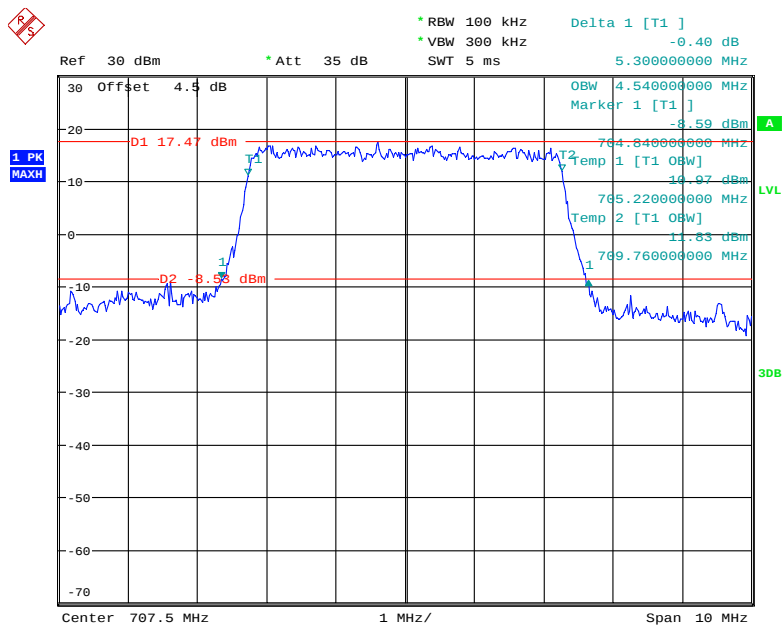
Date: 6 JUN 2020 00:27:00

16QAM_3 MHz



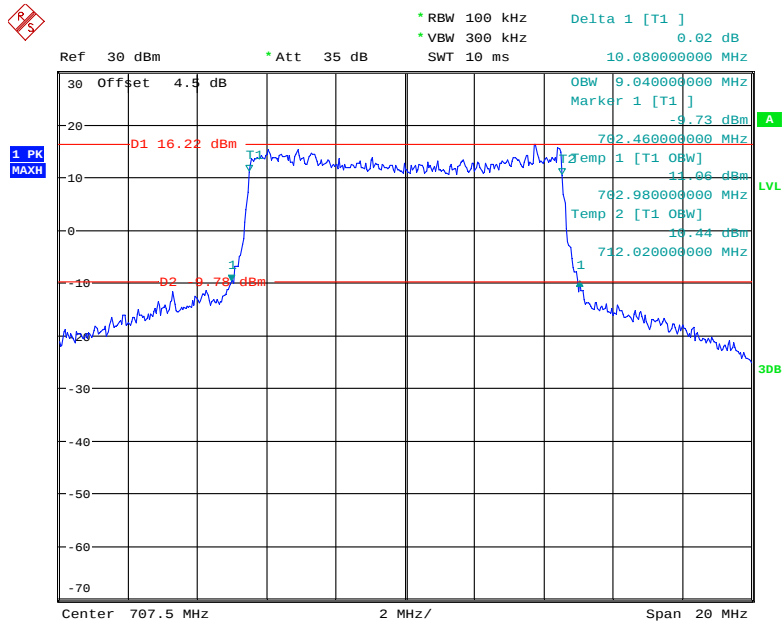
Date: 6 JUN 2020 00:27:45

16QAM_5 MHz

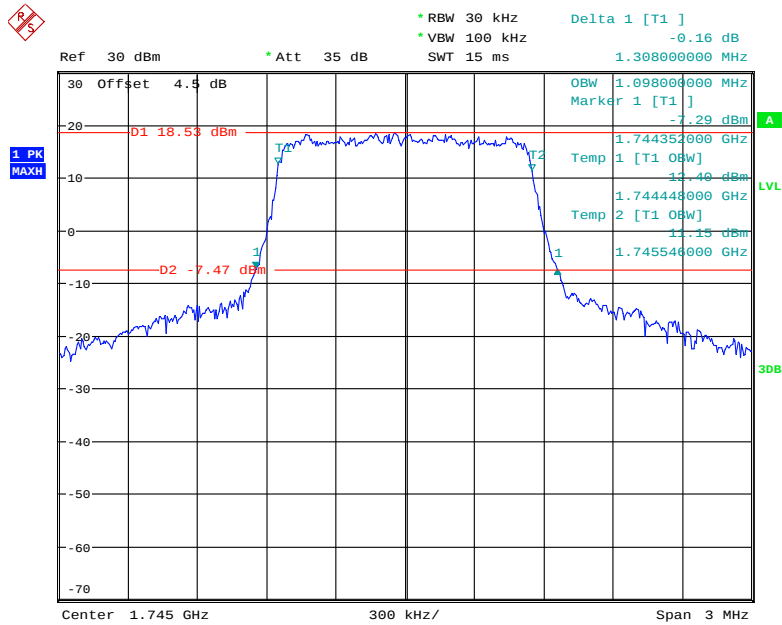


Date: 6.JUN.2020 00:28:49

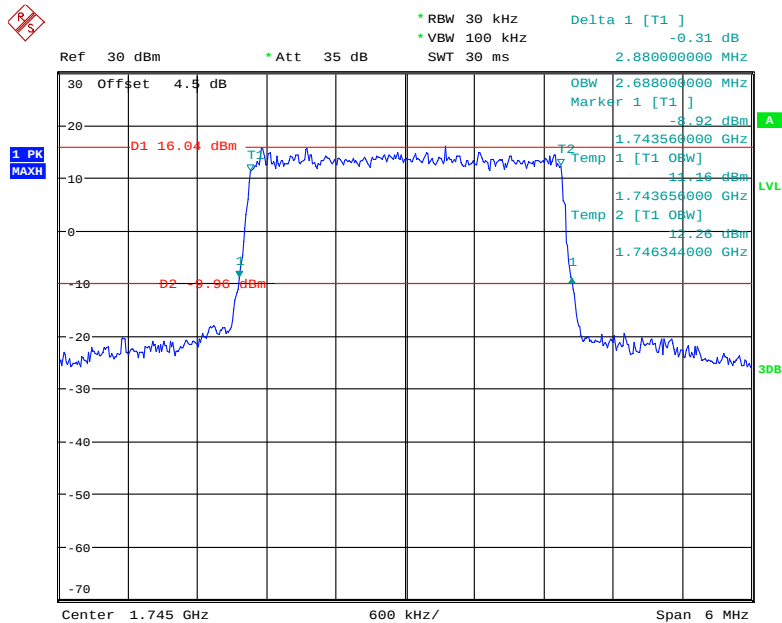
16QAM_10 MHz



Date: 6.JUN.2020 00:29:57

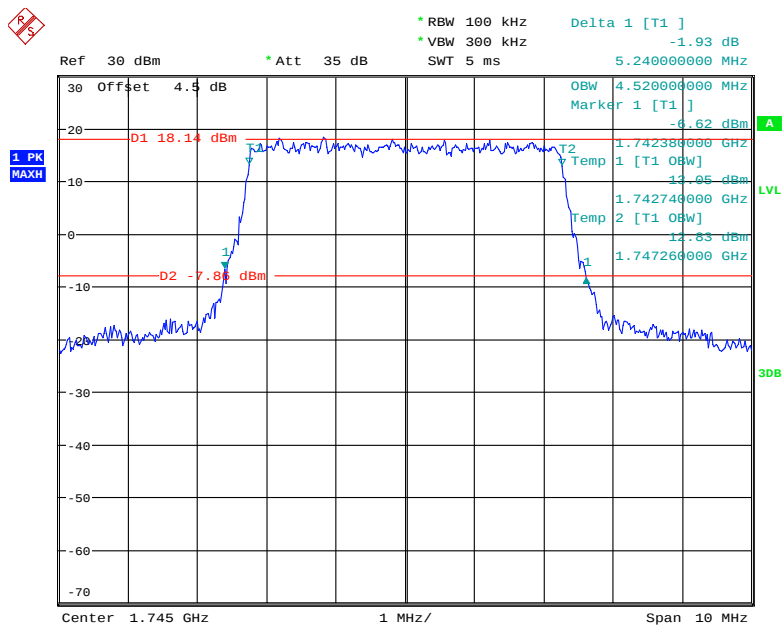
LTE Band 66:**QPSK_1.4 MHz**

Date: 6.JUN.2020 00:30:22

QPSK_3 MHz

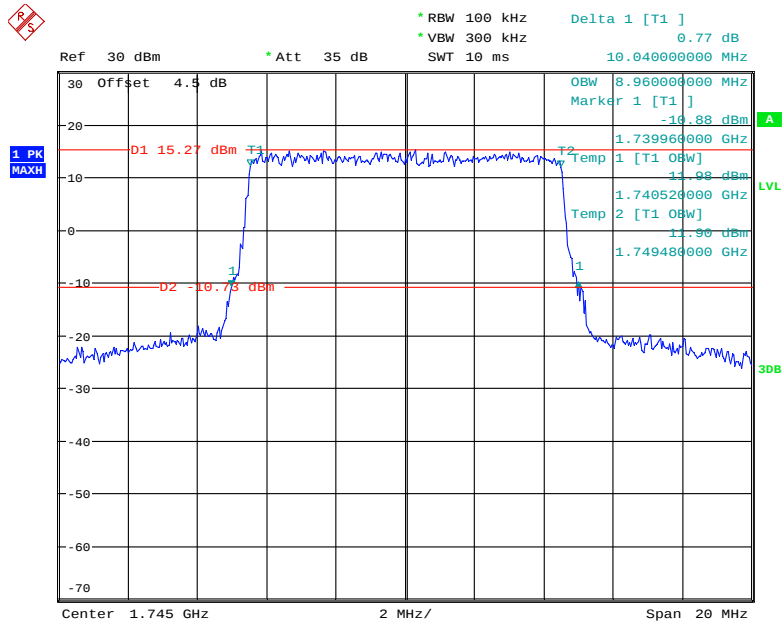
Date: 6.JUN.2020 00:31:10

QPSK_5 MHz



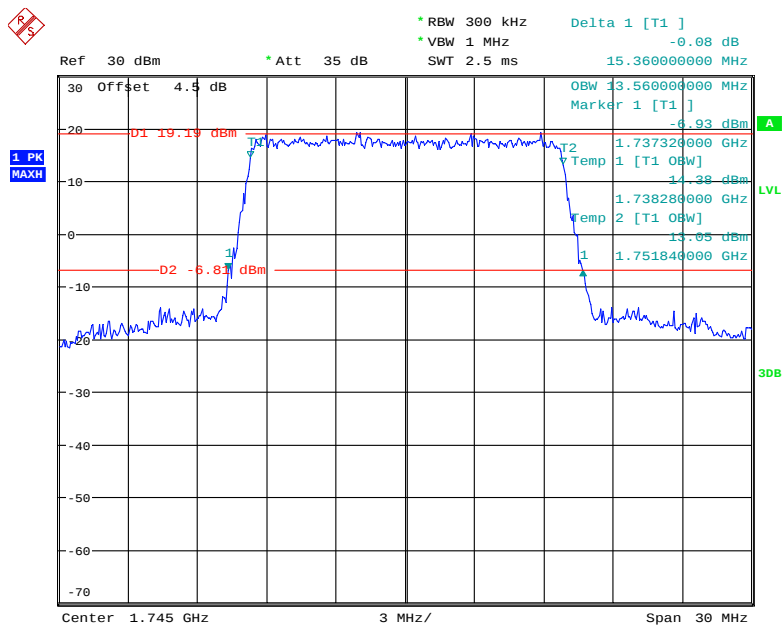
Date: 6.JUN.2020 00:32:01

QPSK_10 MHz



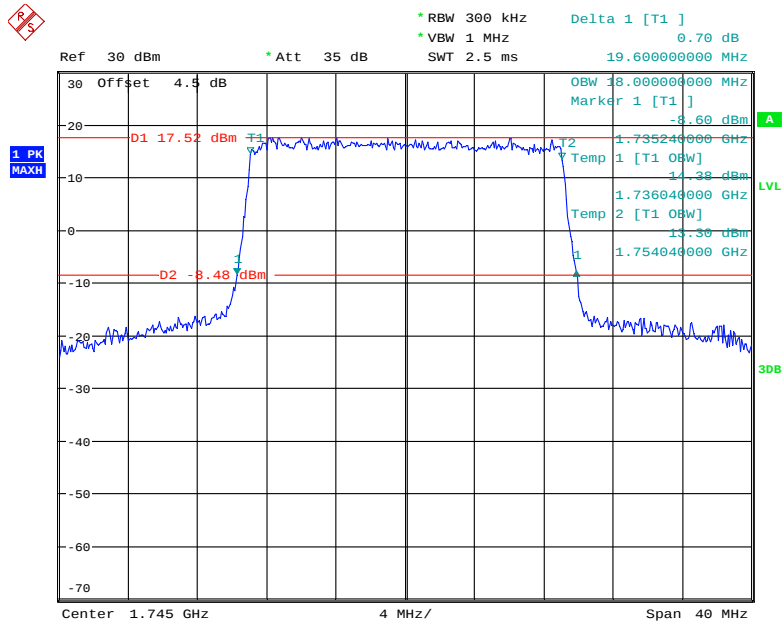
Date: 6.JUN.2020 00:32:52

QPSK_15 MHz



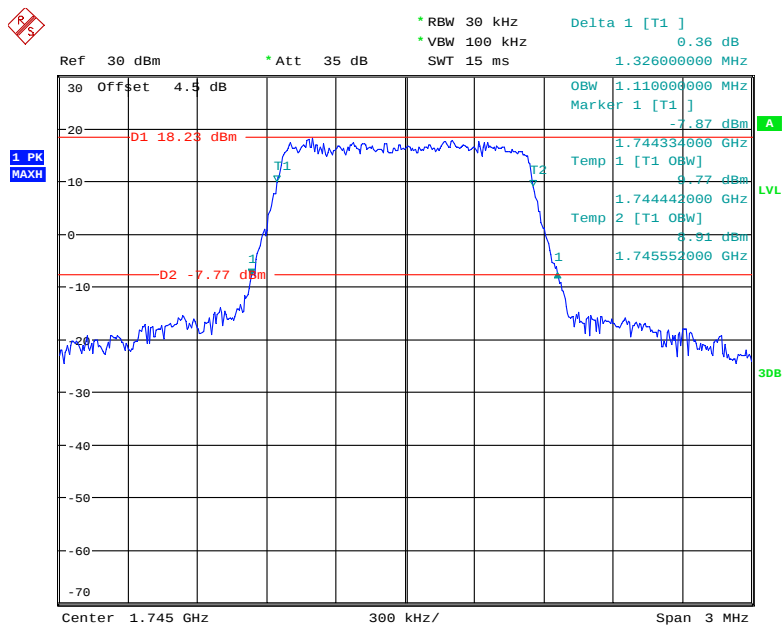
Date: 6.JUN.2020 00:33:46

QPSK_20 MHz



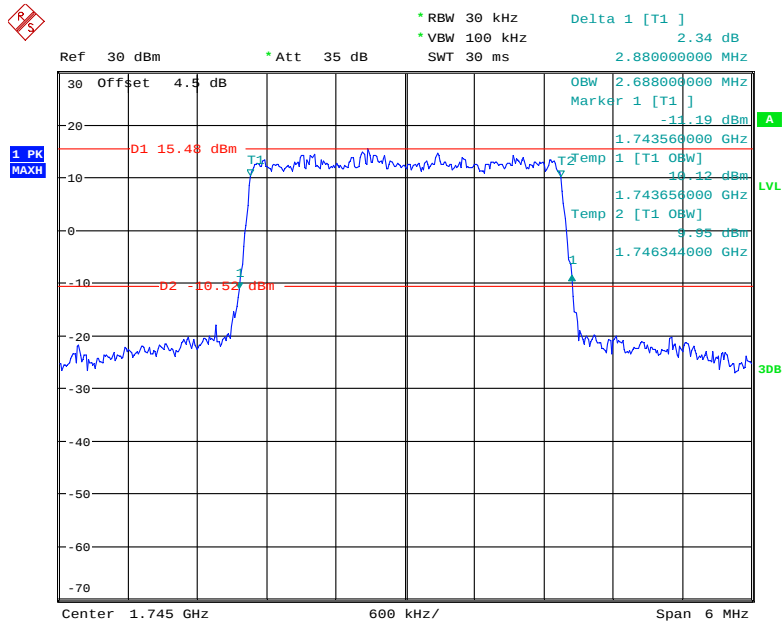
Date: 6.JUN.2020 00:34:43

16QAM_1.4 MHz



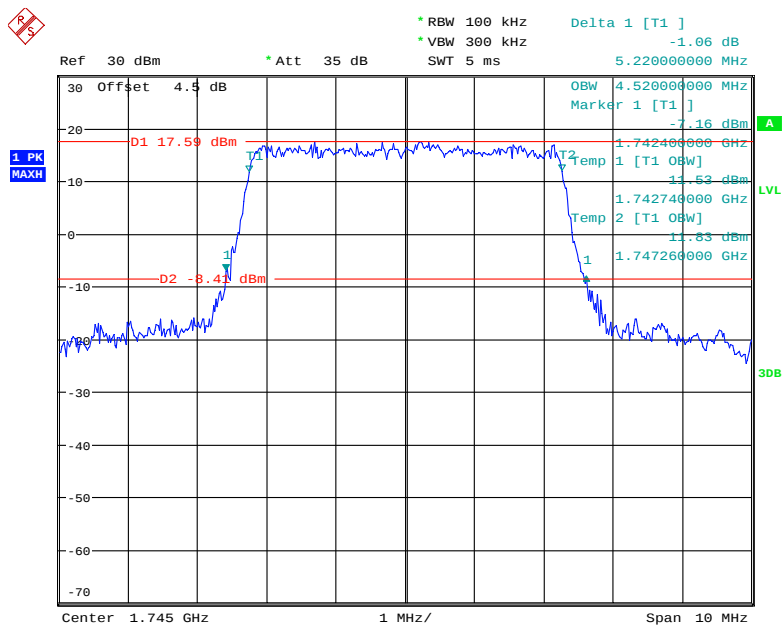
Date: 6.JUN.2020 00:30:46

16QAM_3 MHz



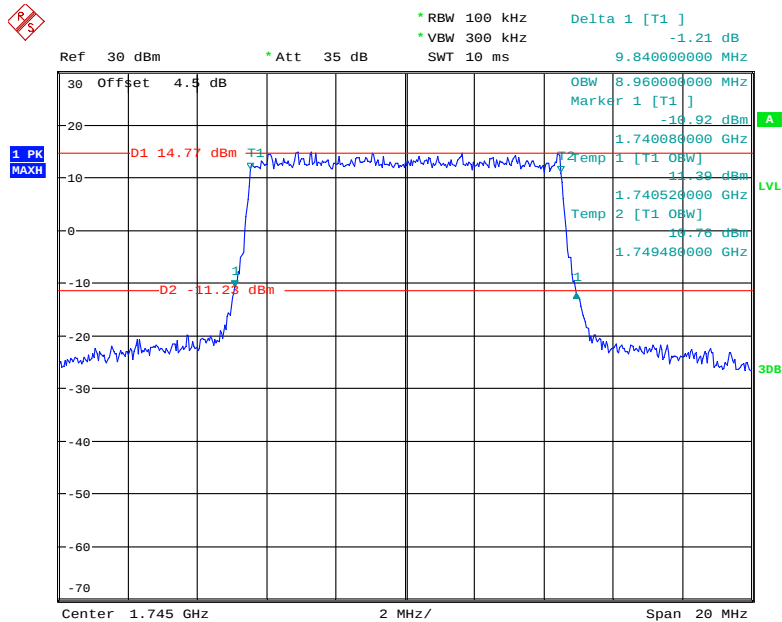
Date: 6.JUN.2020 00:31:34

16QAM_5 MHz



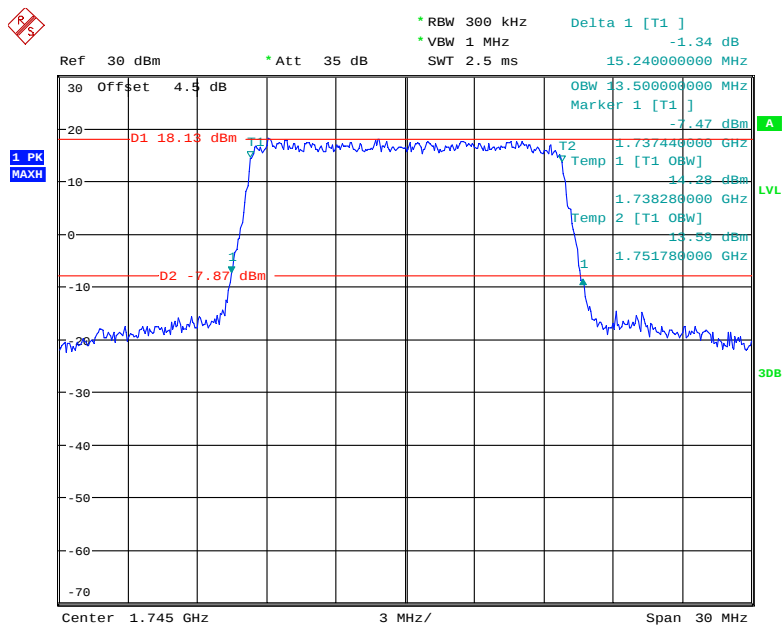
Date: 6.JUN.2020 00:32:28

16QAM_10 MHz



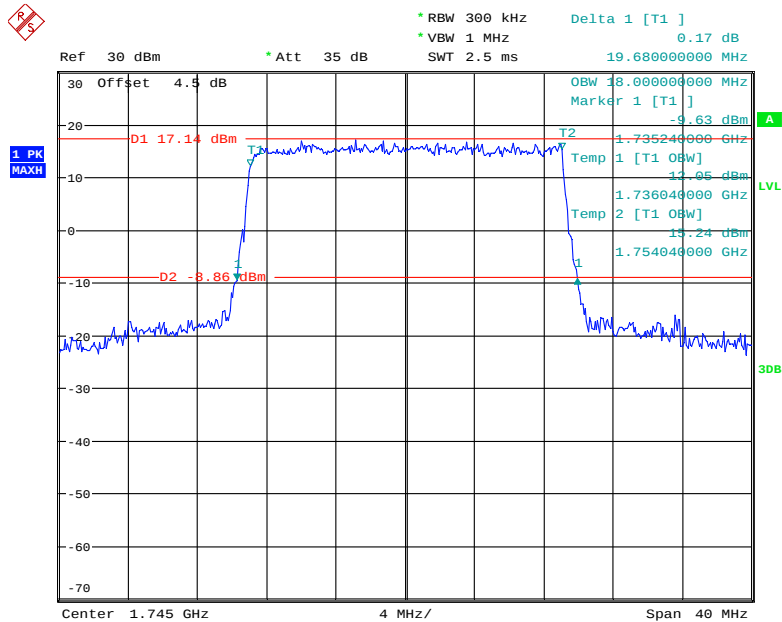
Date: 6.JUN.2020 00:33:14

16QAM_15 MHz



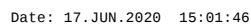
Date: 6.JUN.2020 00:34:13

16QAM_20 MHz



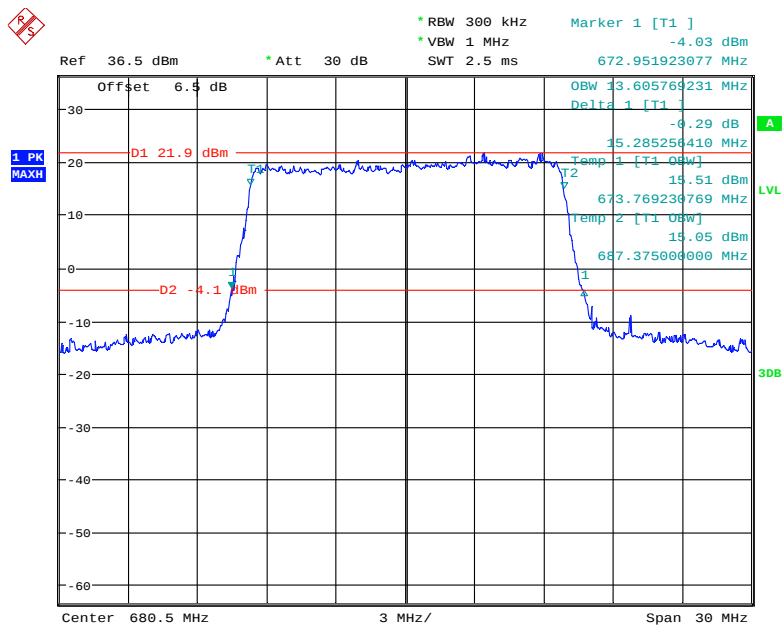
Date: 6.JUN.2020 00:35:11

QPSK_5 MHz



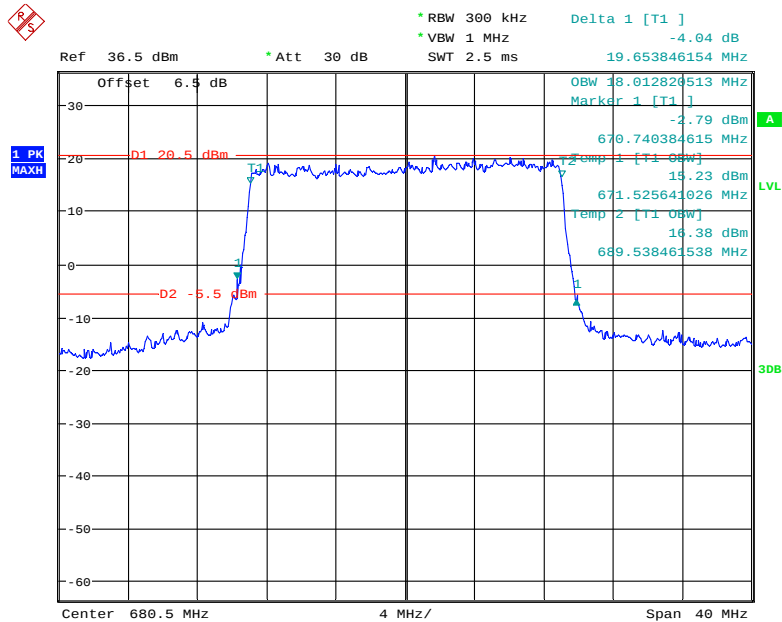
Date: 17.JUN.2020 14:46:08

QPSK_15 MHz



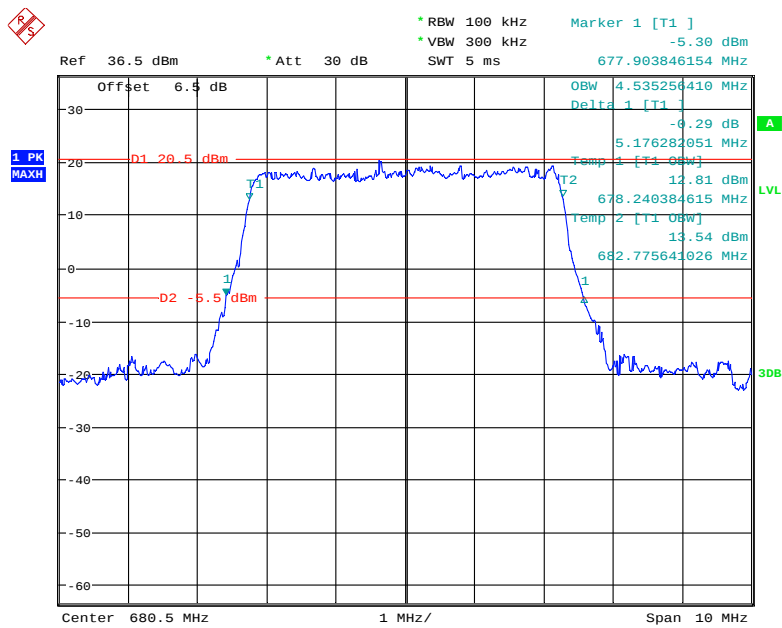
Date: 17.JUN.2020 14:53:05

QPSK_20 MHz



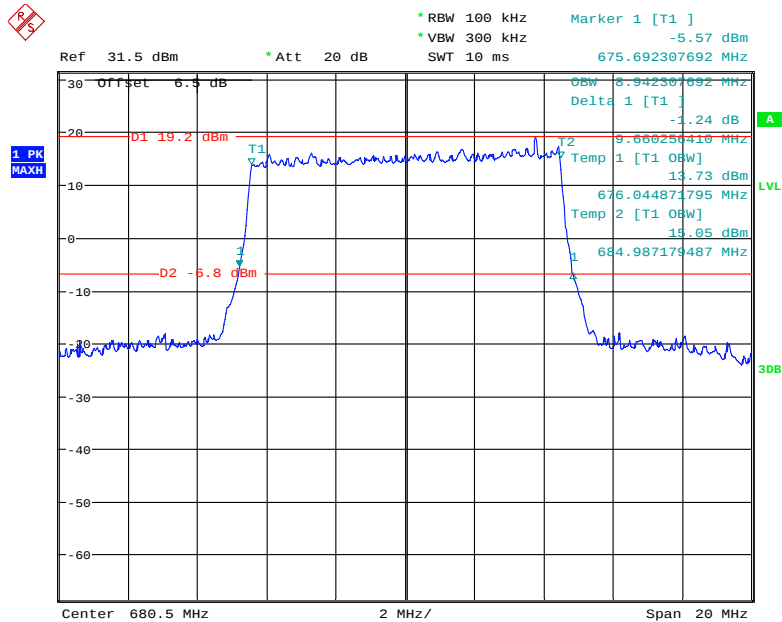
Date: 17.JUN.2020 14:57:32

16QAM_5 MHz



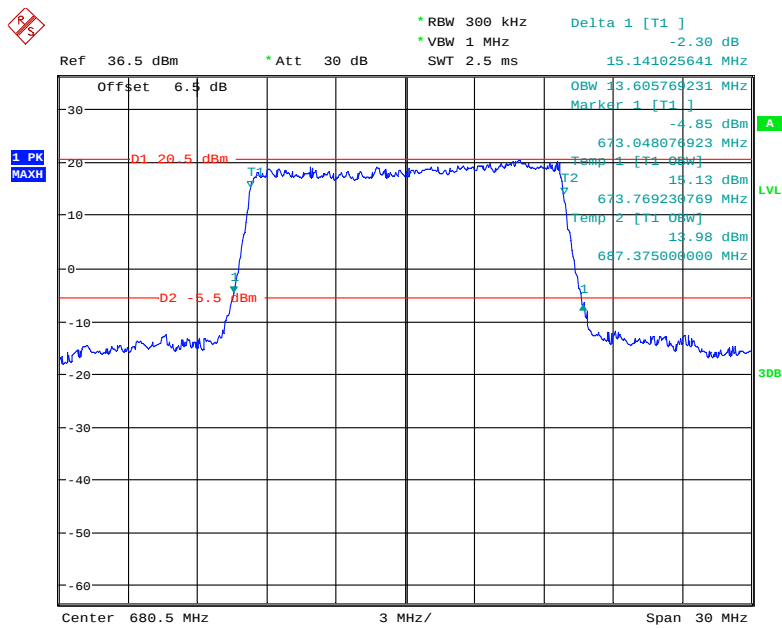
Date: 17.JUN.2020 15:03:23

16QAM_10 MHz



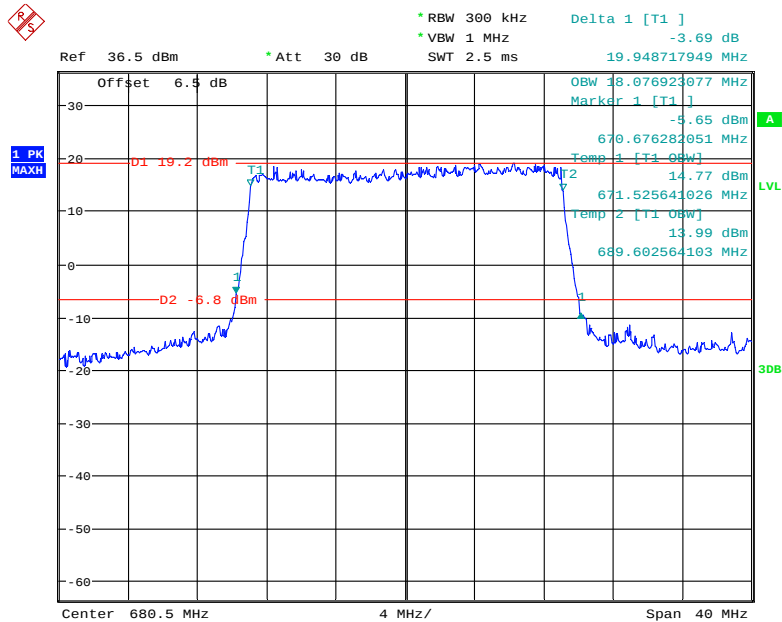
Date: 17.JUN.2020 14:50:12

16QAM_15 MHz



Date: 17.JUN.2020 14:55:05

16QAM_20 MHz



Date: 17.JUN.2020 14:59:00

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

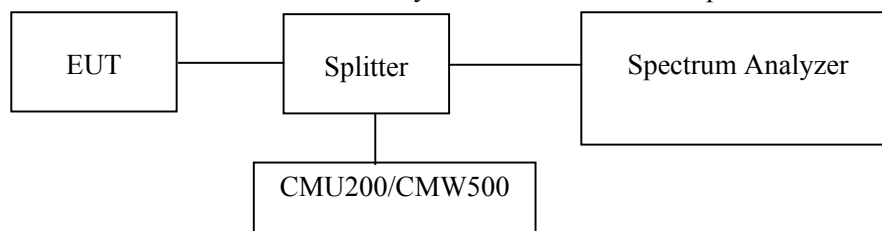
Applicable Standard

FCC §2.1051, §22.917(a) , §24.238(a) and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
R&S	Spectrum Analyzer	FSP 38	100478	2020-05-09	2021-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41002201	Each Time	/
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each Time	/

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

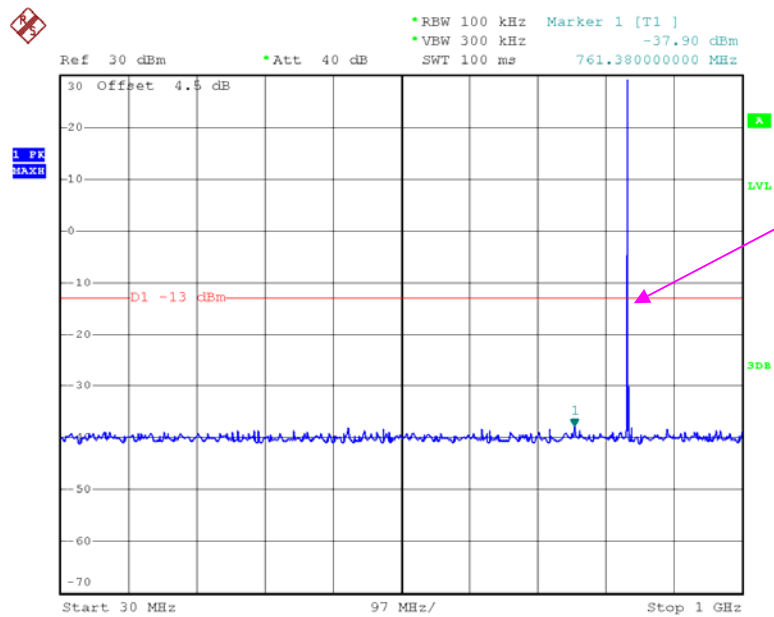
Test Data

Environmental Conditions

Temperature:	27.1 °C~ 30 °C
Relative Humidity:	54 %~ 74 %
ATM Pressure:	99.8kPa ~100.8kPa
Tester:	James Chen
Test Date:	2020-06-06~2020-06-17

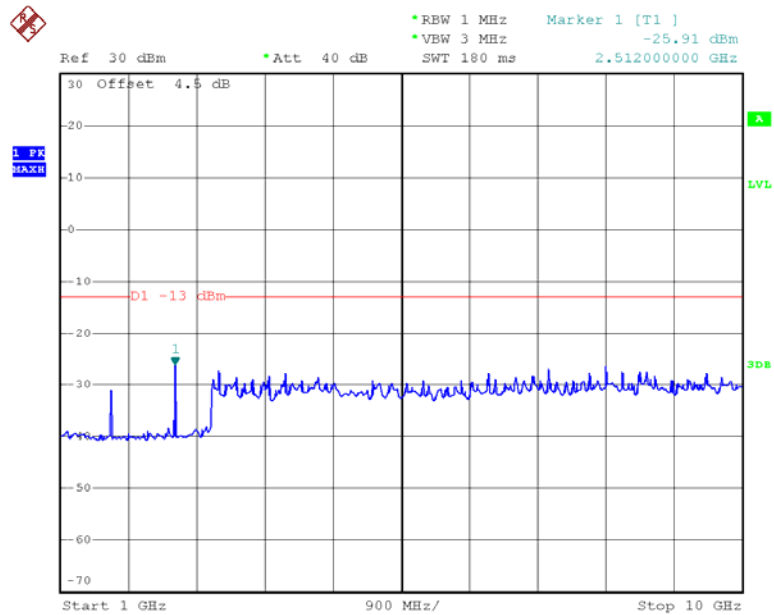
Test Result: Compliance. Please refer to the following plots.

GSM850 Middle Channel



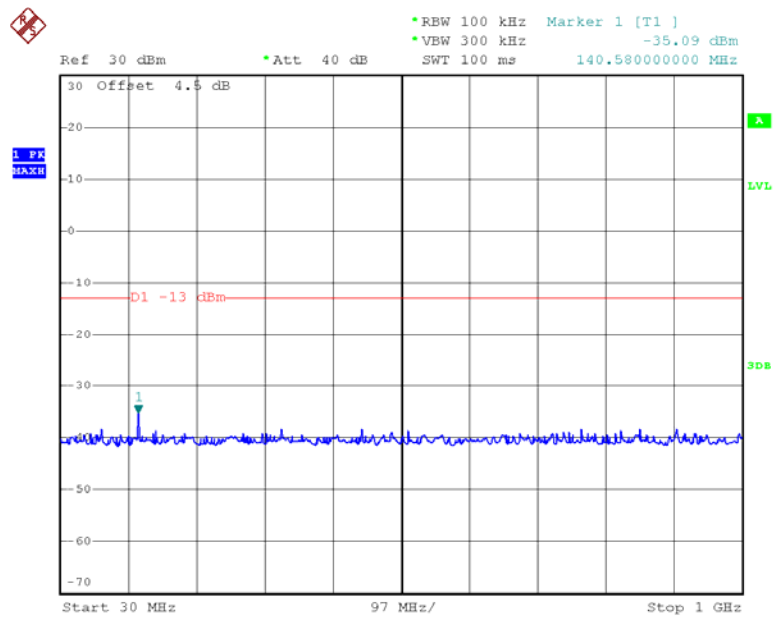
Fundamental

Date: 9.JUN.2020 01:15:09



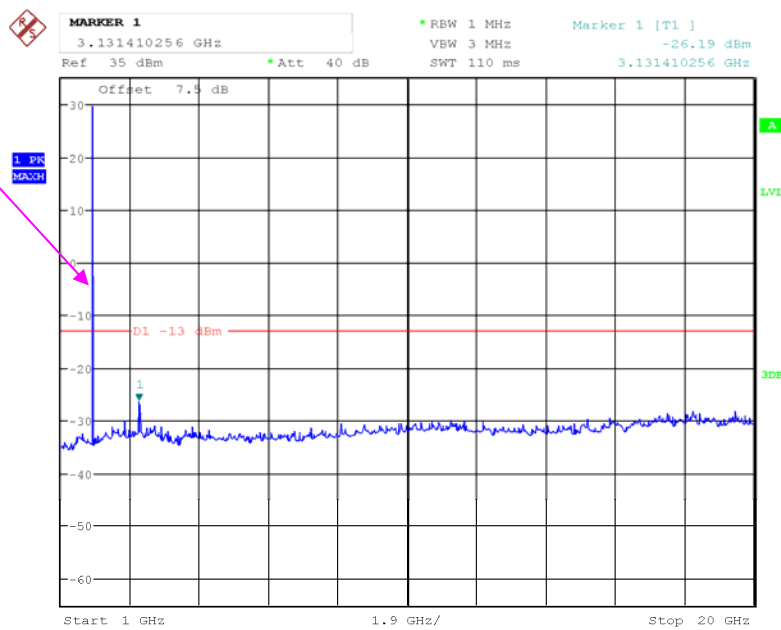
Date: 9.JUN.2020 01:15:45

PCS 1900 Middle Channel



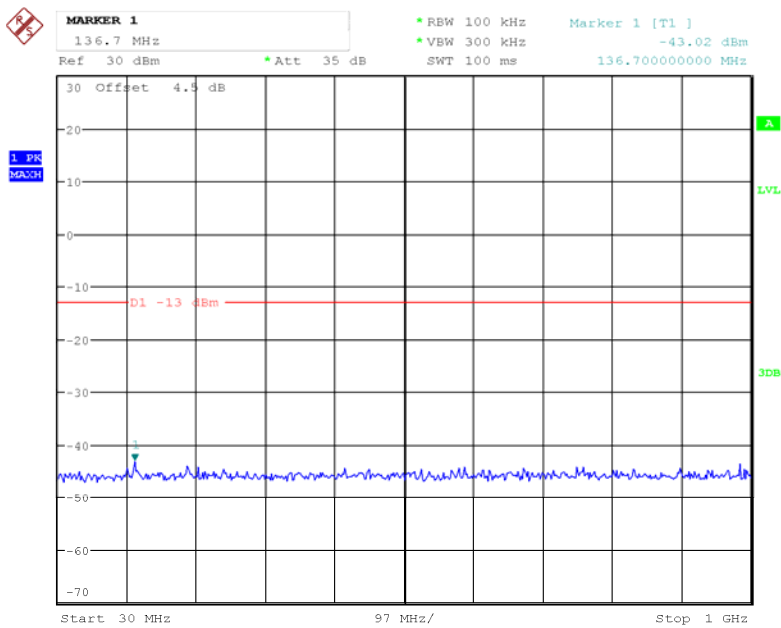
Date: 9.JUN.2020 01:37:02

Fundamental



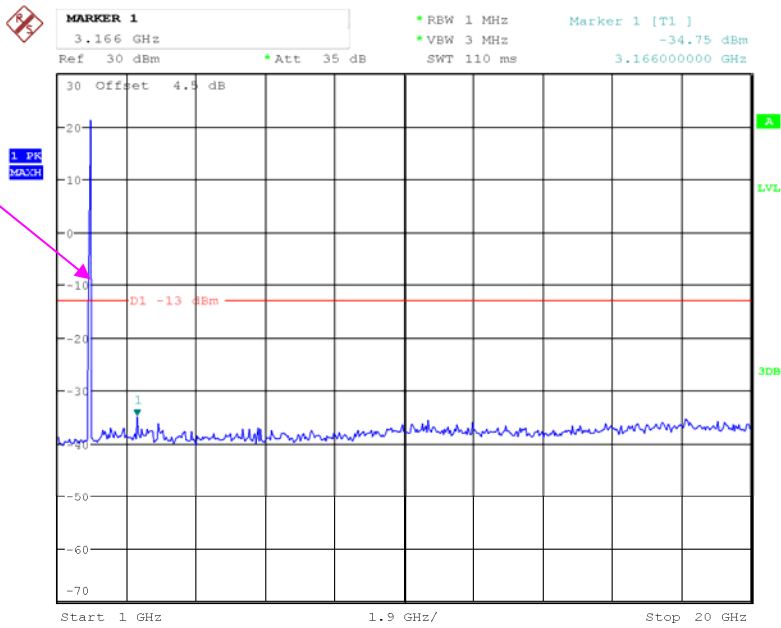
Date: 9.JUN.2020 20:26:44

WCDMA Band 2 Rel 99 Middle Channel



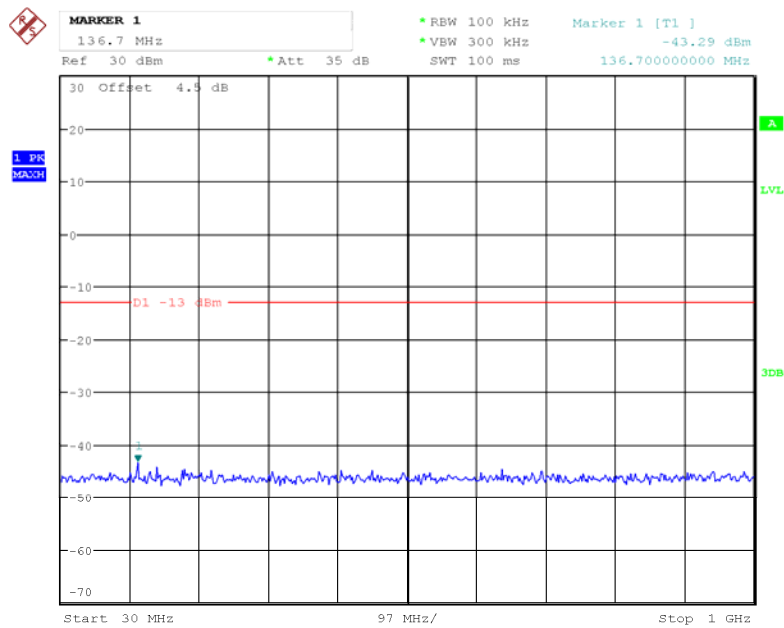
Date: 7.JUN.2020 16:29:27

Fundamental



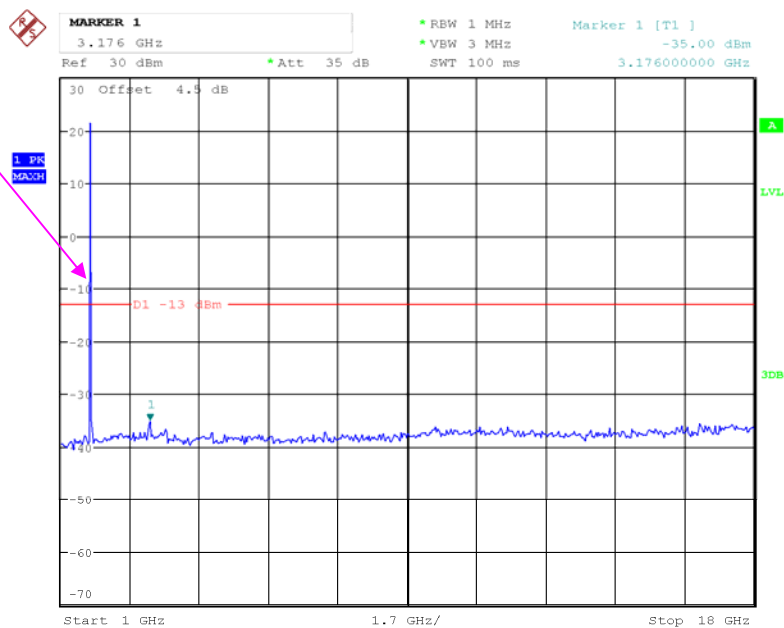
Date: 7.JUN.2020 16:35:30

WCDMA Band 4 Rel 99 Middle Channel



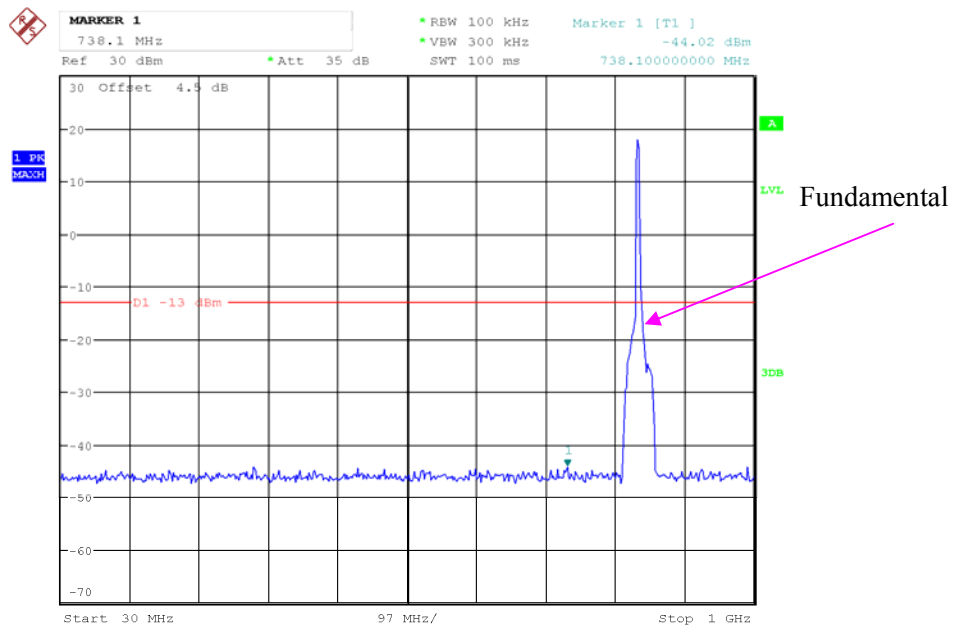
Date: 7.JUN.2020 16:30:21

Fundamental

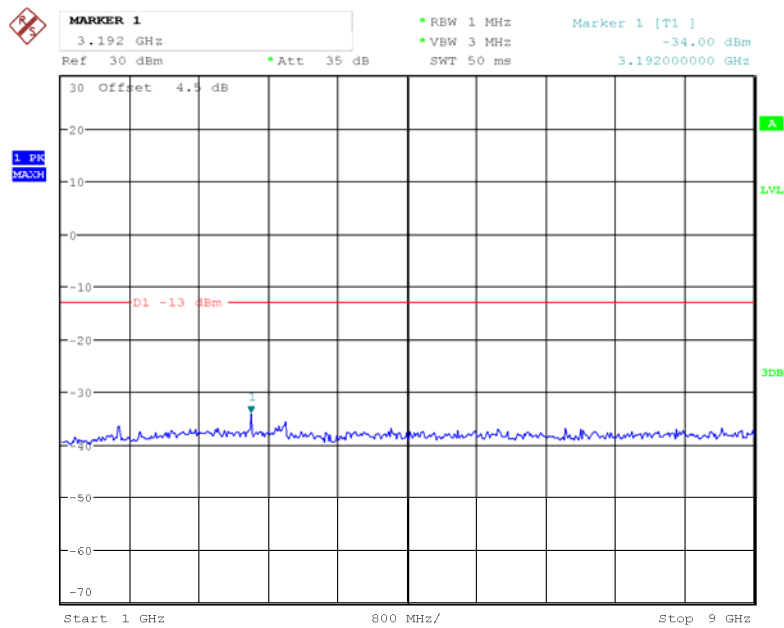


Date: 7.JUN.2020 16:34:54

WCDMA Band 5 Rel 99 Middle Channel

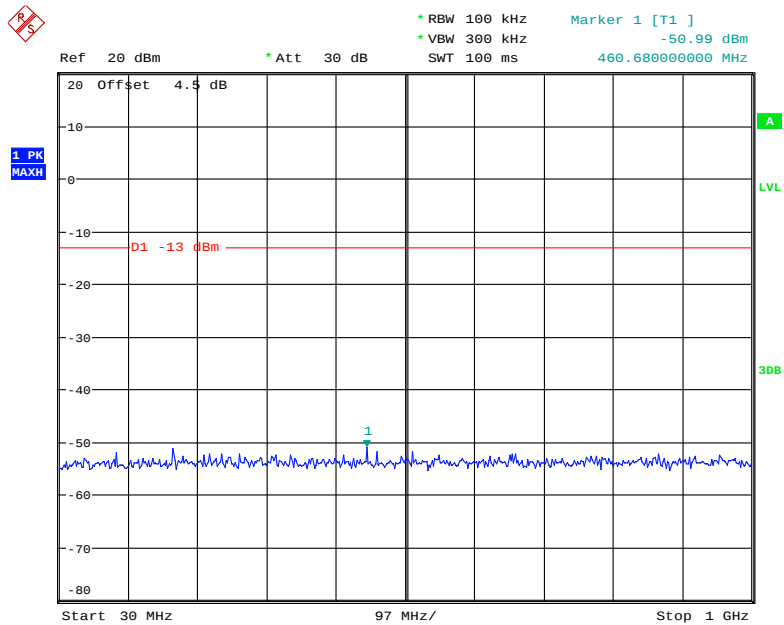


Date: 7.JUN.2020 16:31:30



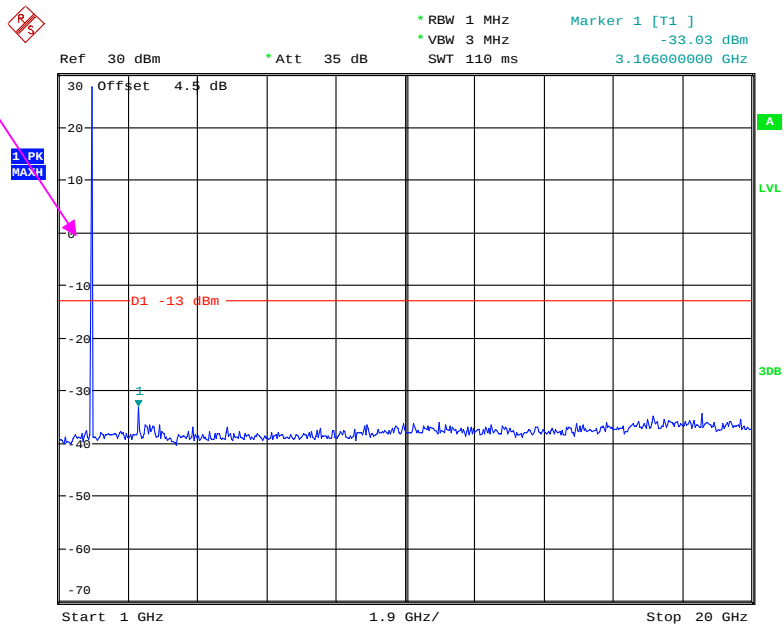
Date: 7.JUN.2020 16:32:58

LTE Band 2_1.4 MHz_Middle_QPSK



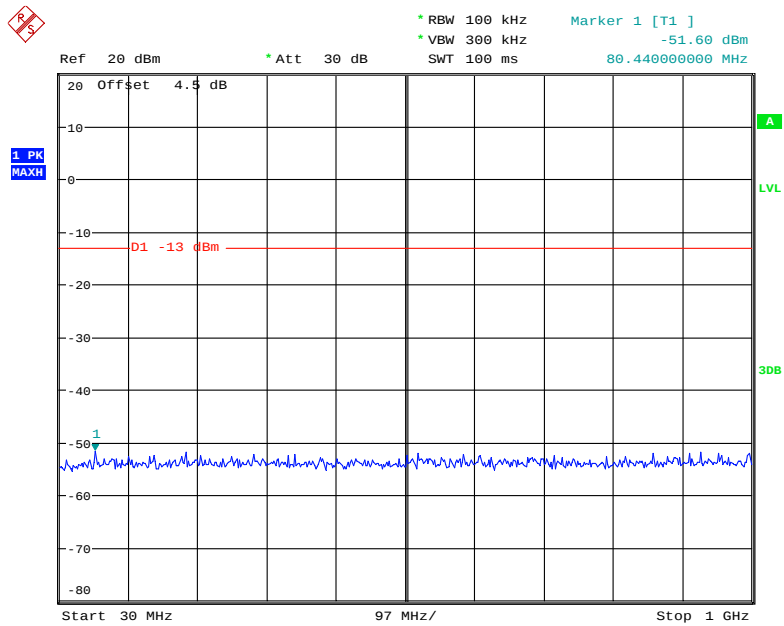
Date: 6.JUN.2020 01:27:56

Fundamental



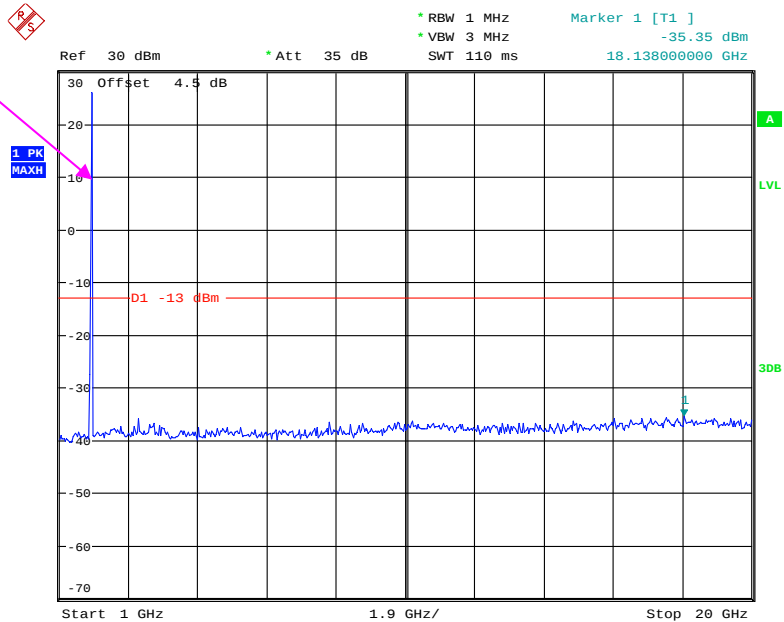
Date: 6.JUN.2020 01:28:08

LTE Band 2_3 MHz_Middle_QPSK



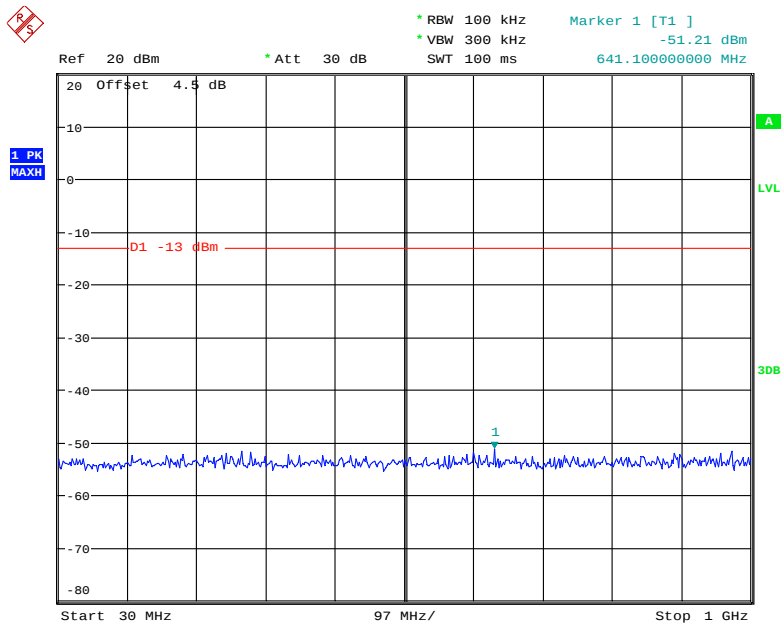
Date: 6.JUN.2020 01:28:27

Fundamental



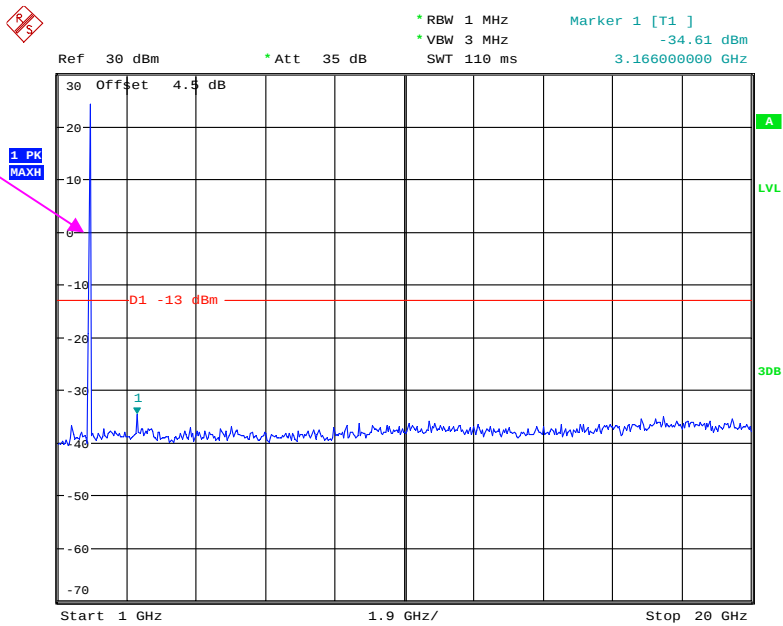
Date: 6.JUN.2020 01:28:38

LTE Band 2_5 MHz_Middle_QPSK



Date: 6.JUN.2020 01:28:57

Fundamental

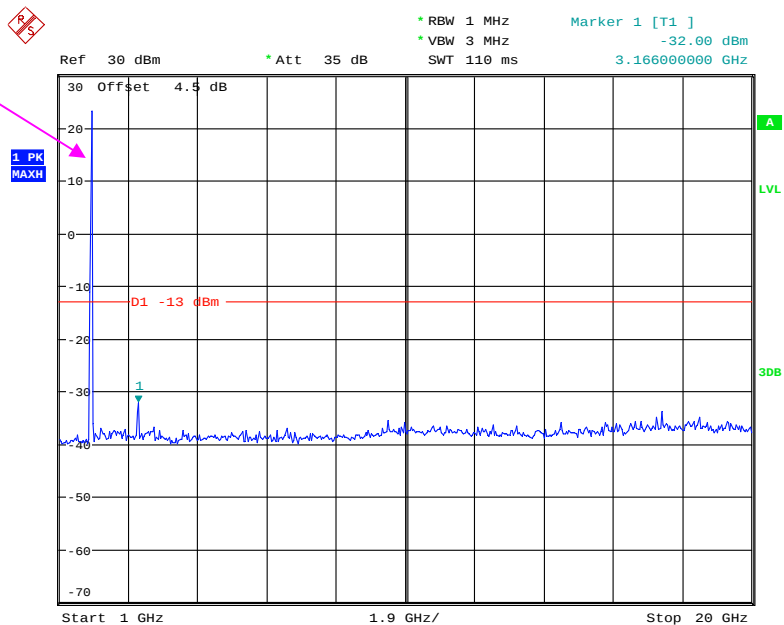


Date: 6.JUN.2020 01:29:09

The screenshot displays a Spectrum Analyzer interface with the following details:

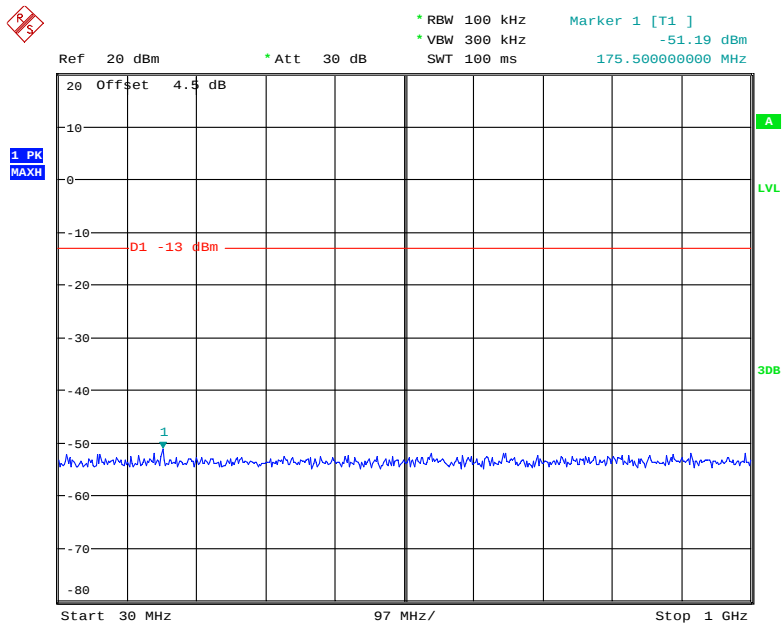
- Top Panel:**
 - Ref: 20 dBm
 - * Att: 30 dB
 - * RBW: 100 kHz
 - * VBW: 300 kHz
 - SWT: 100 ms
 - Marker 1 [T1]: -51.34 dBm
 - 776.900000000 MHz
- Left Panel:**
 - 1 PK MAXH (blue box)
- Plot Area:**
 - Y-axis: Power in dBm, ranging from -80 to 20.
 - X-axis: Frequency in MHz, ranging from 30 to 1000 (1 GHz).
 - A red horizontal line is drawn at -13 dBm, labeled "D1 -13 dBm".
 - A blue trace shows the noise floor, which is relatively flat around -51.34 dBm.
 - A green label "A" is visible on the right side of the plot area.
 - A green label "3dB" is visible on the right side of the plot area.
 - A green label "1" is visible near the noise floor trace.
- Bottom Panel:**
 - Start: 30 MHz
 - 97 MHz/ (center frequency)
 - Stop: 1 GHz

Fundamental



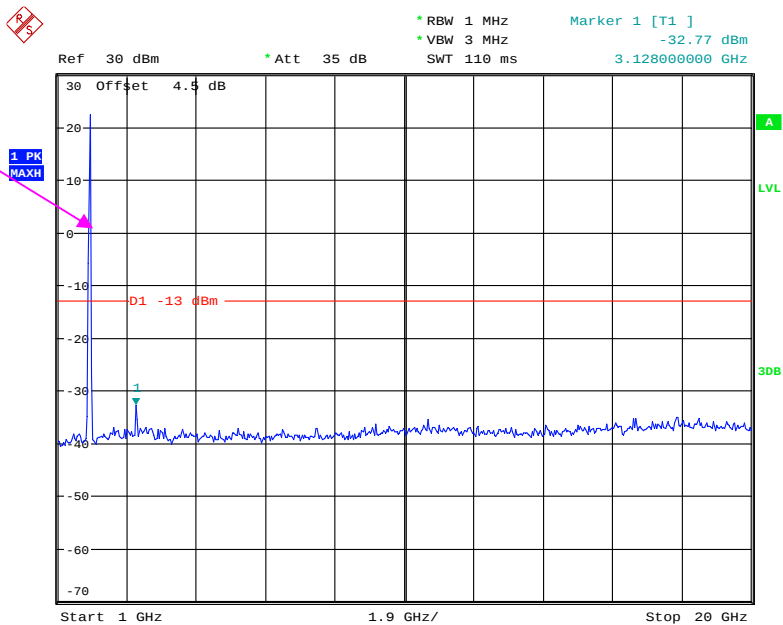
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LTE Band 2_15 MHz_Middle_QPSK



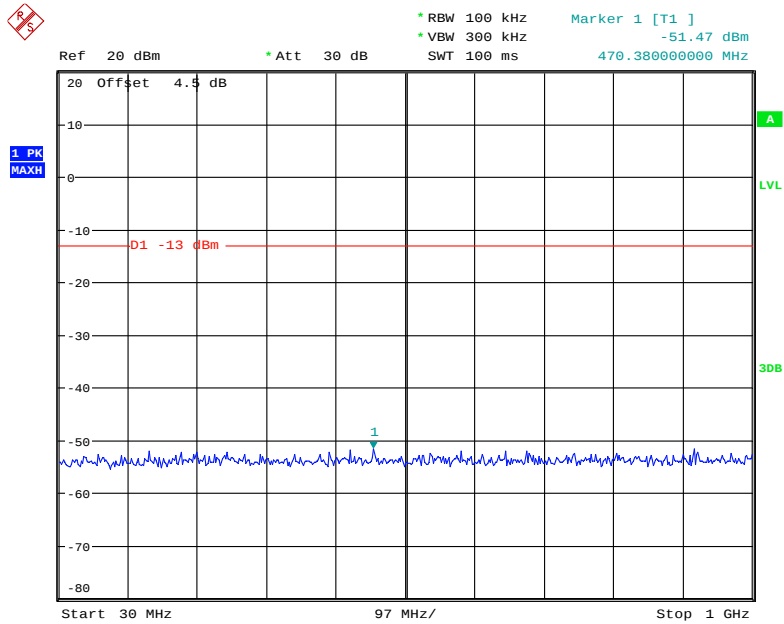
Date: 6.JUN.2020 01:30:09

Fundamental



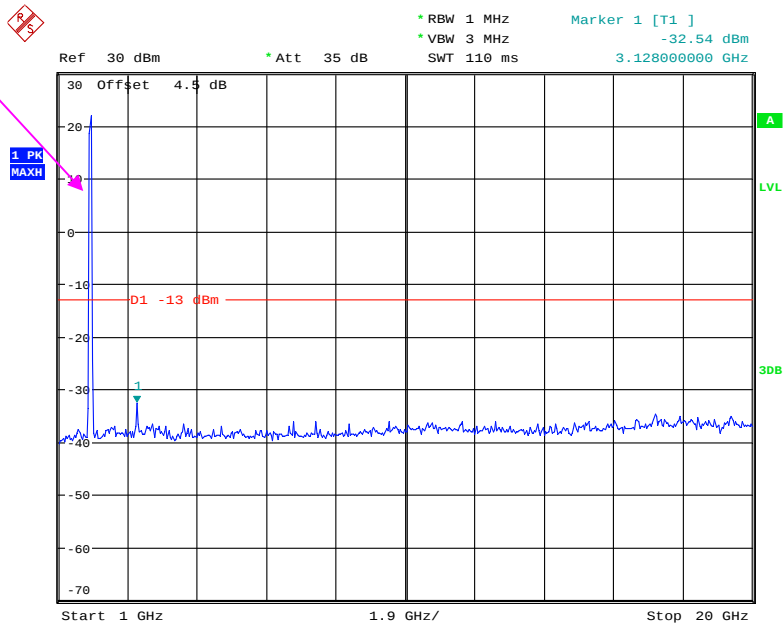
Date: 6.JUN.2020 01:30:21

LTE Band 2_20 MHz_Middle_QPSK



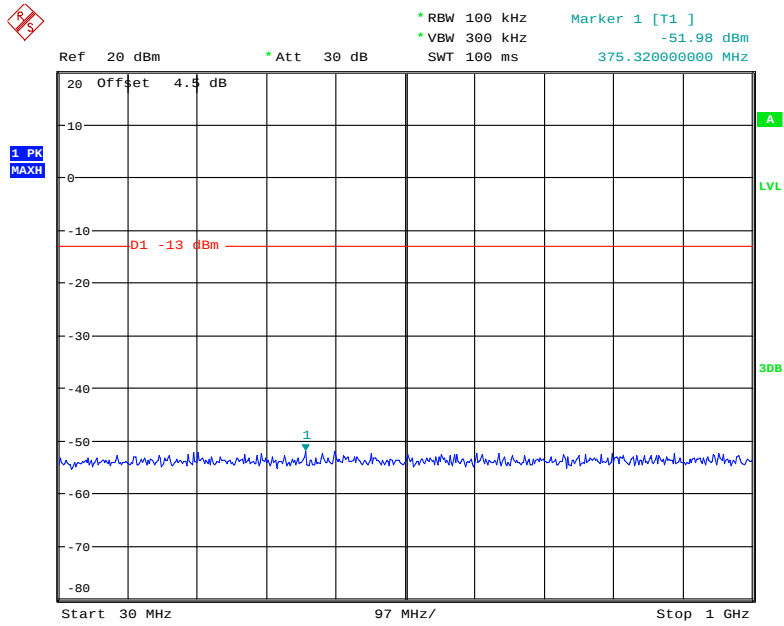
Date: 6.JUN.2020 01:30:43

Fundamental

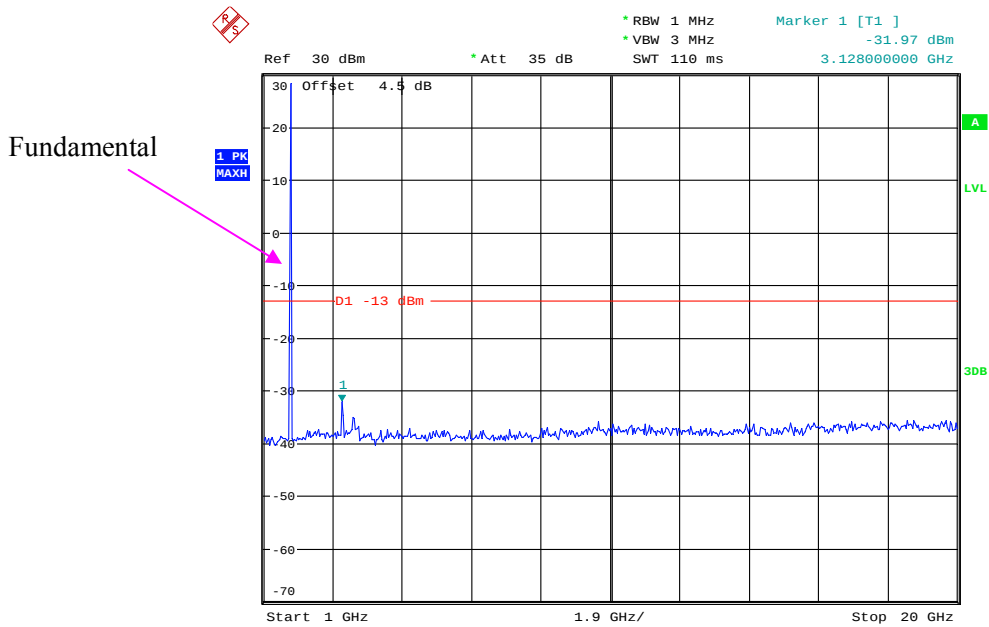


Date: 6.JUN.2020 01:30:58

LTE Band 4_1.4 MHz_Middle_QPSK

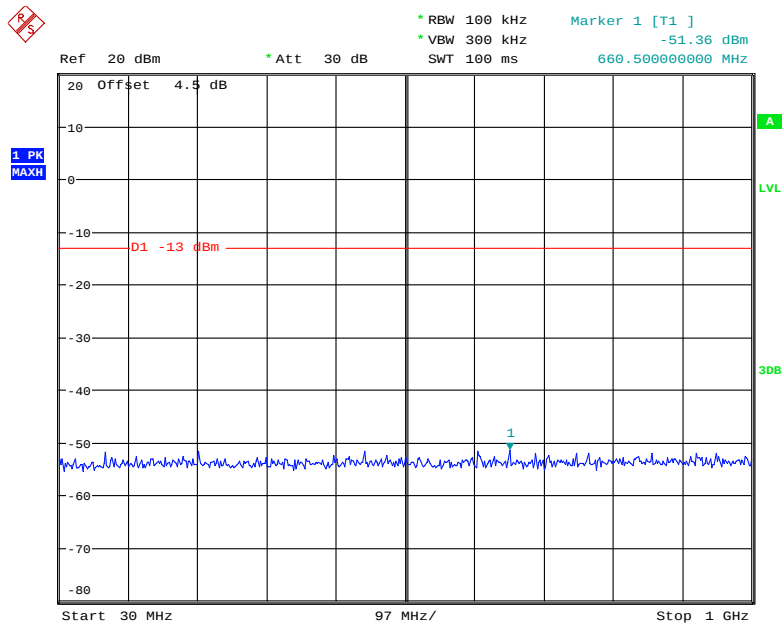


Date: 6.JUN.2020 01:31:18

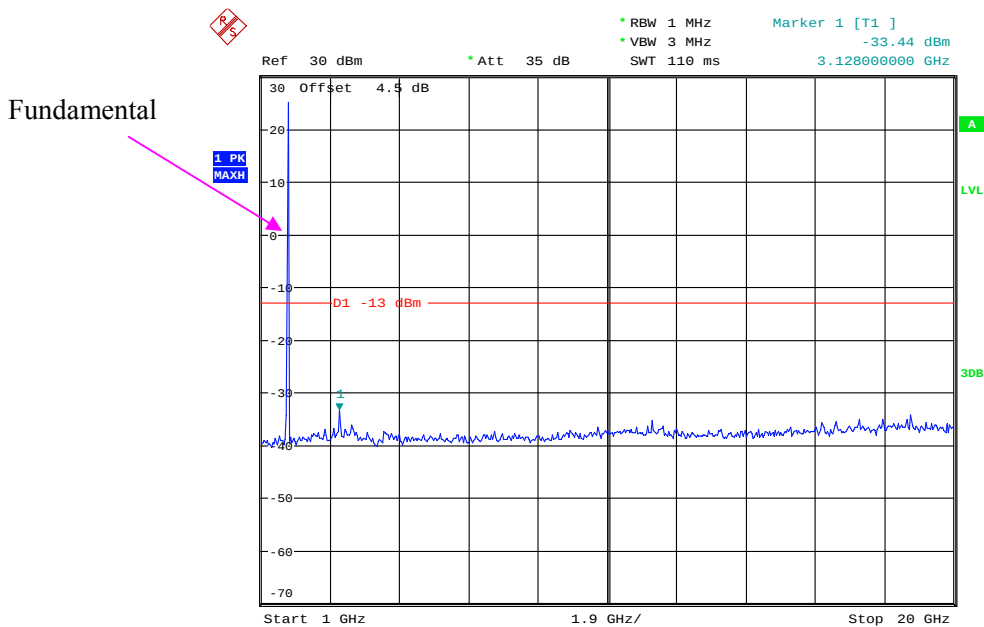


Date: 6.JUN.2020 01:31:30

LTE Band 4_3 MHz_Middle_QPSK

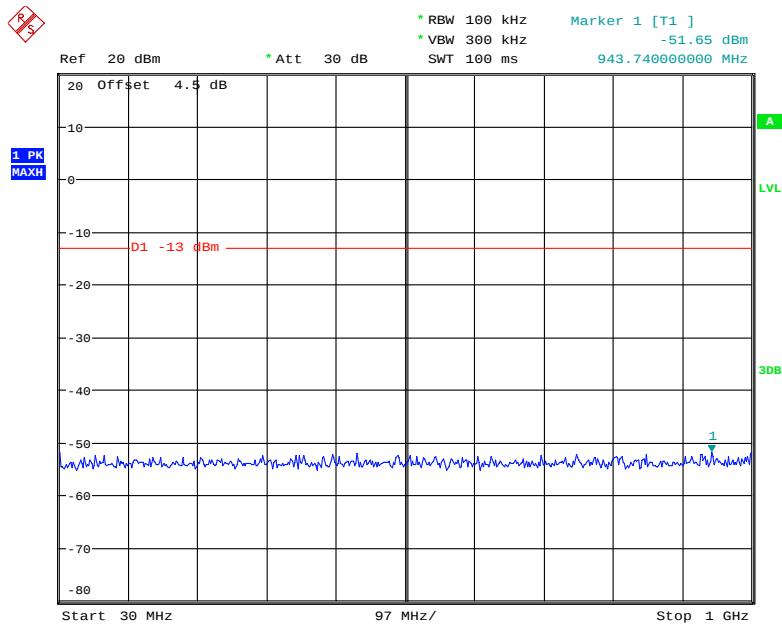


Date: 6.JUN.2020 01:31:48



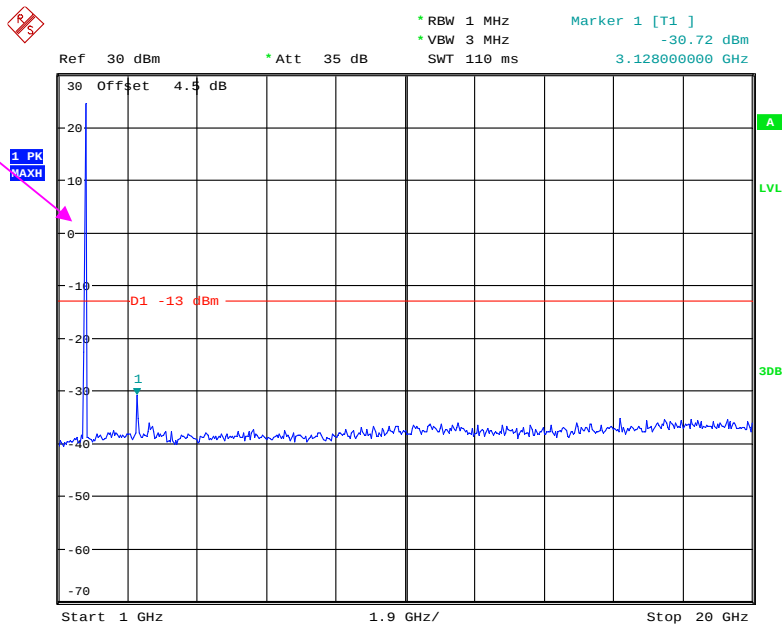
Date: 6.JUN.2020 01:32:00

LTE Band 4_5 MHz_Middle_QPSK



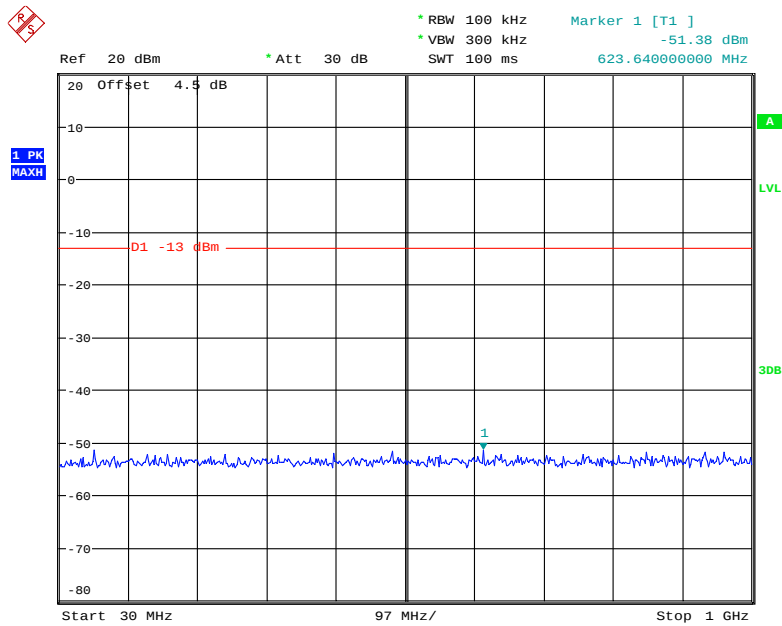
Date: 6.JUN.2020 01:32:19

Fundamental



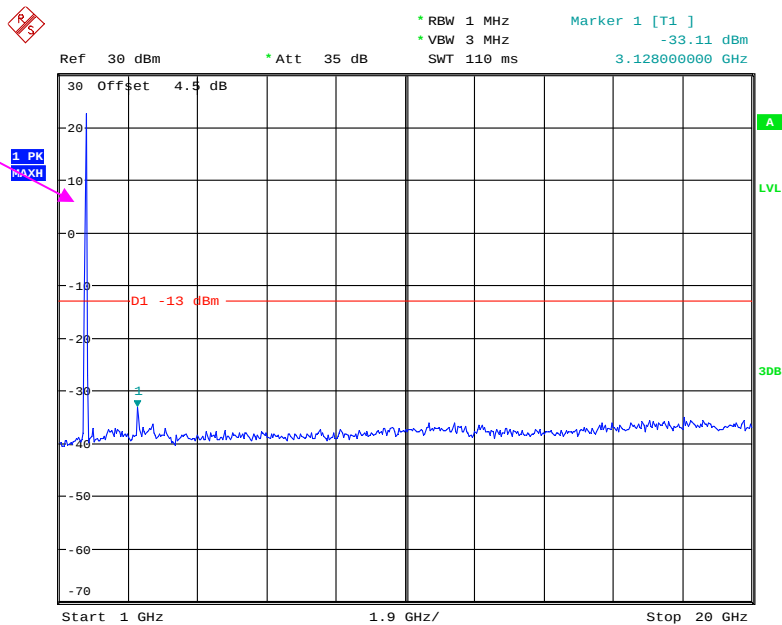
Date: 6.JUN.2020 01:32:30

LTE Band 4_10 MHz_Middle_QPSK



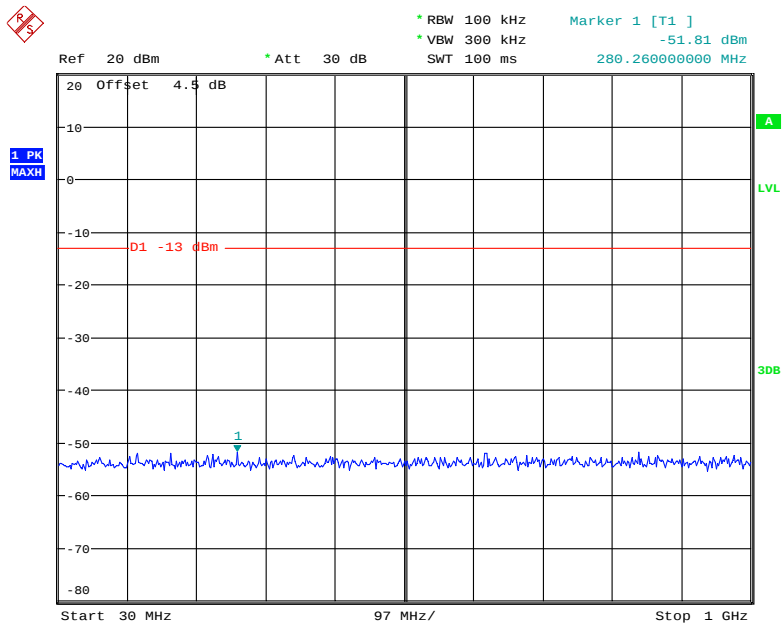
Date: 6.JUN.2020 01:32:53

Fundamental

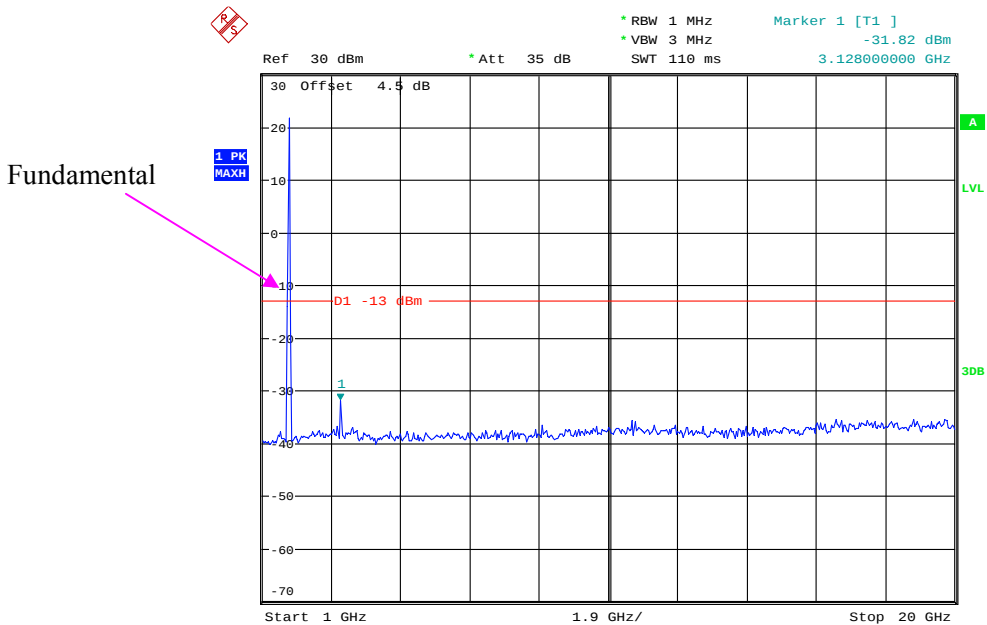


Date: 6.JUN.2020 01:33:05

LTE Band 4_15 MHz_Middle_QPSK

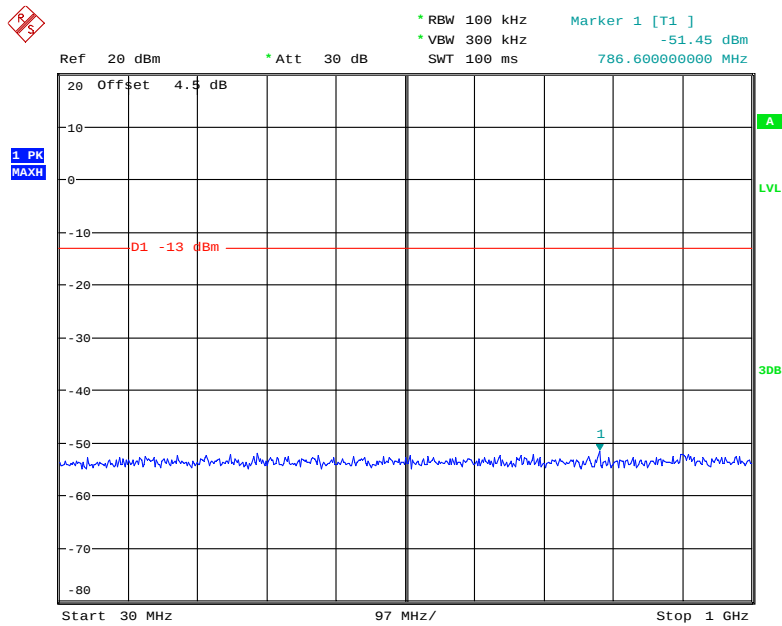


Date: 6.JUN.2020 01:33:27



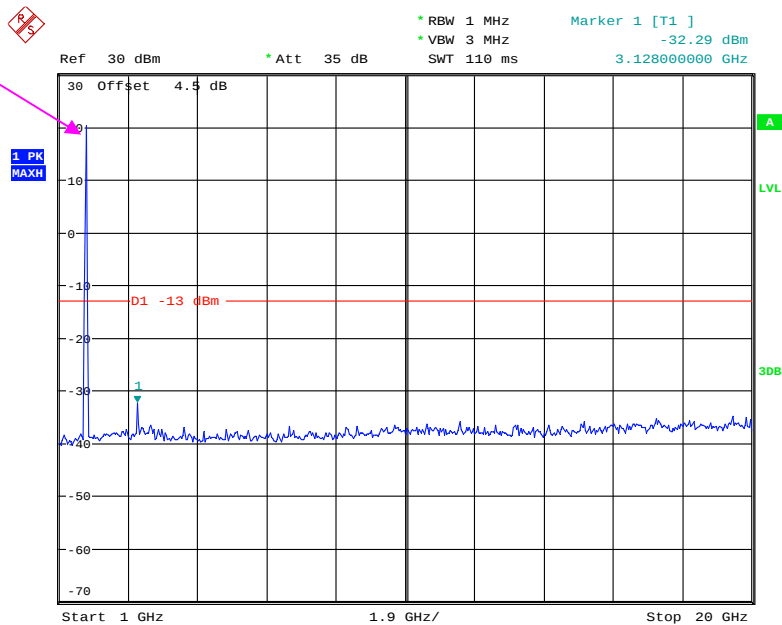
Date: 6.JUN.2020 01:33:39

LTE Band 4_20 MHz_Middle_QPSK



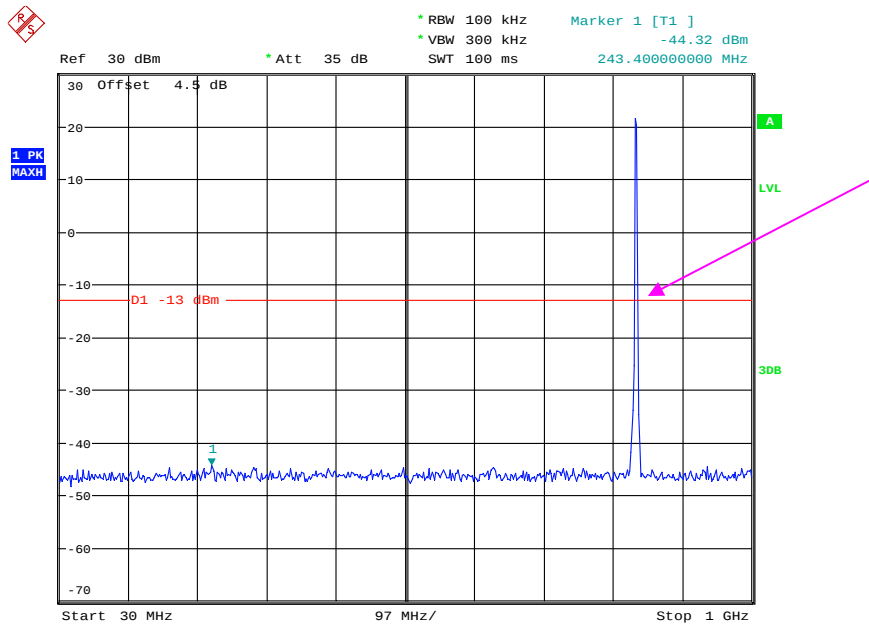
Date: 6.JUN.2020 01:34:04

Fundamental

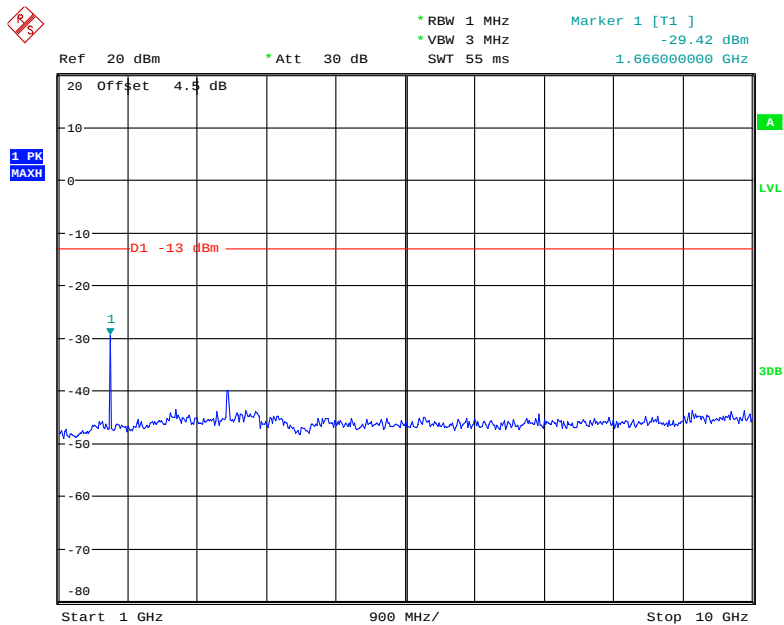


Date: 6.JUN.2020 01:34:15

LTE Band 5_1.4 MHz_Middle_QPSK

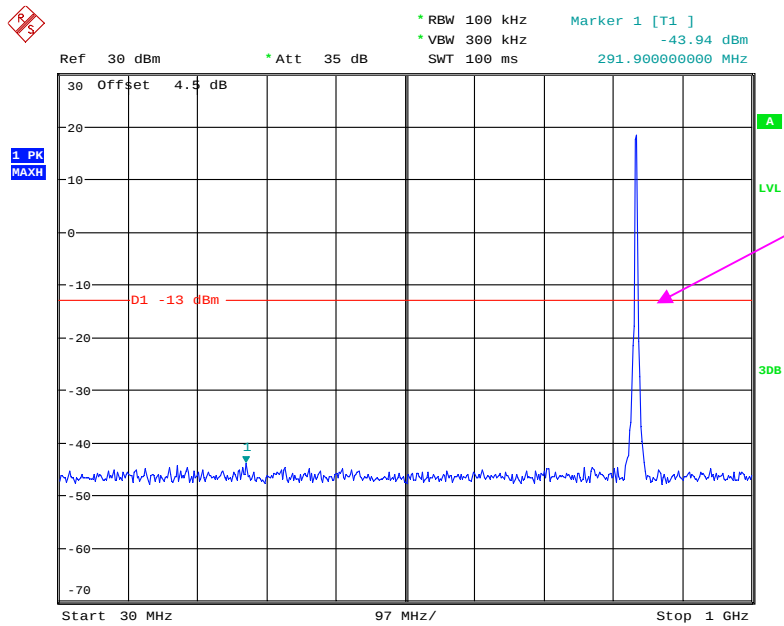


Date: 6.JUN.2020 01:34:37

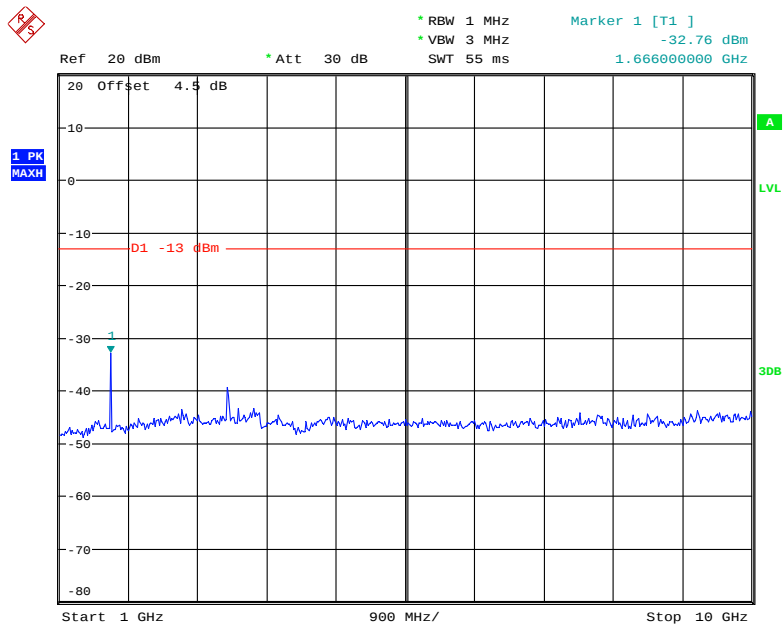


Date: 6.JUN.2020 01:34:49

LTE Band 5_3 MHz_Middle_QPSK

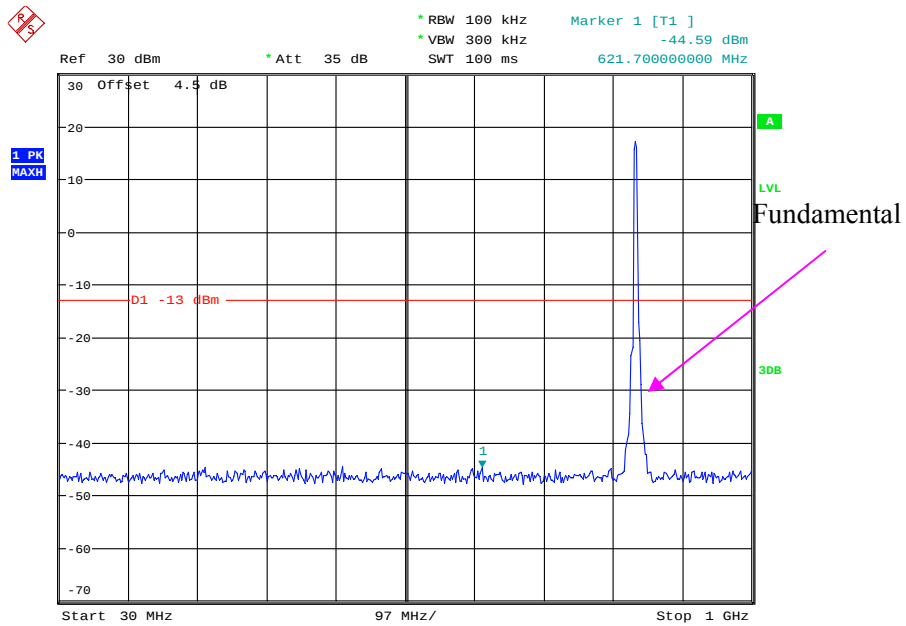


Date: 6.JUN.2020 01:35:08

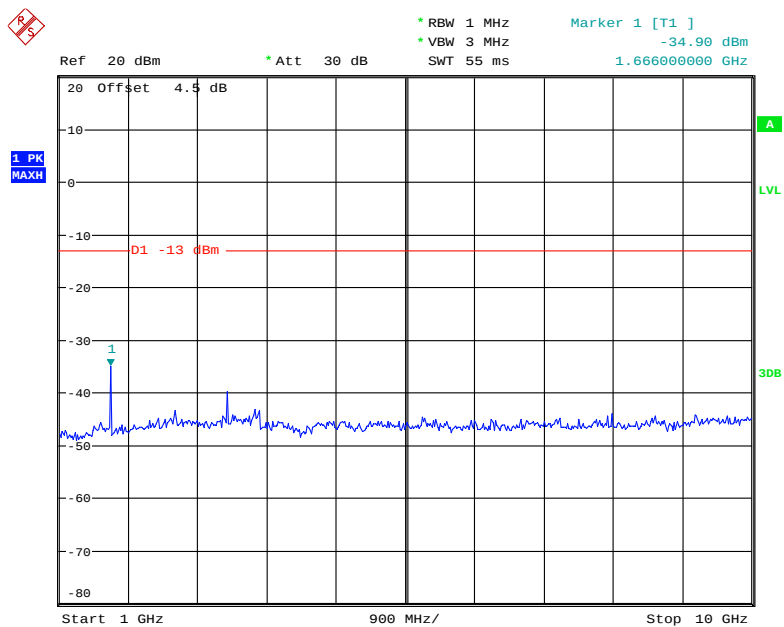


Date: 6.JUN.2020 01:35:19

LTE Band 5_5 MHz_Middle_QPSK

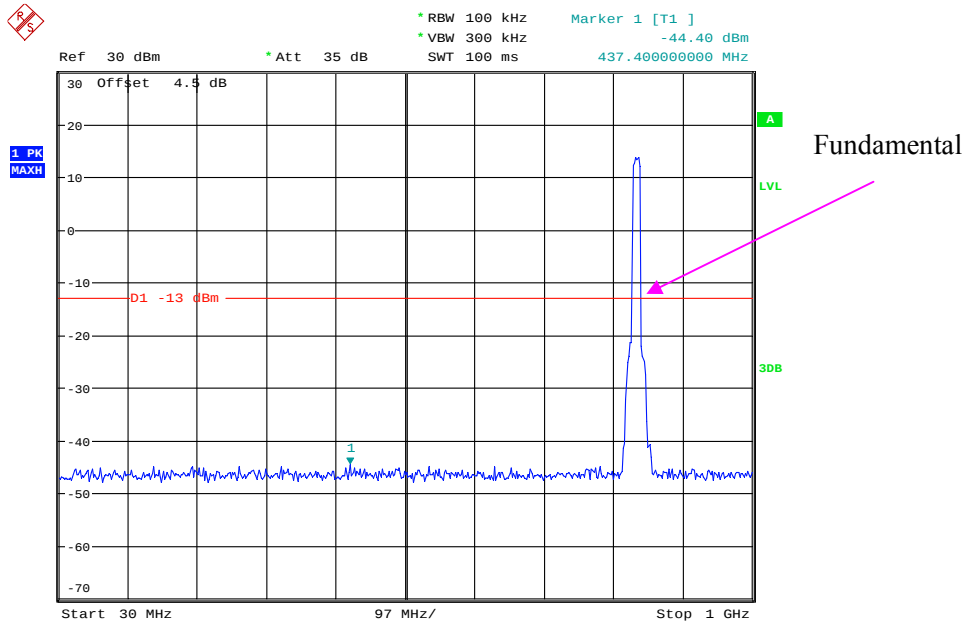


Date: 6.JUN.2020 01:35:38

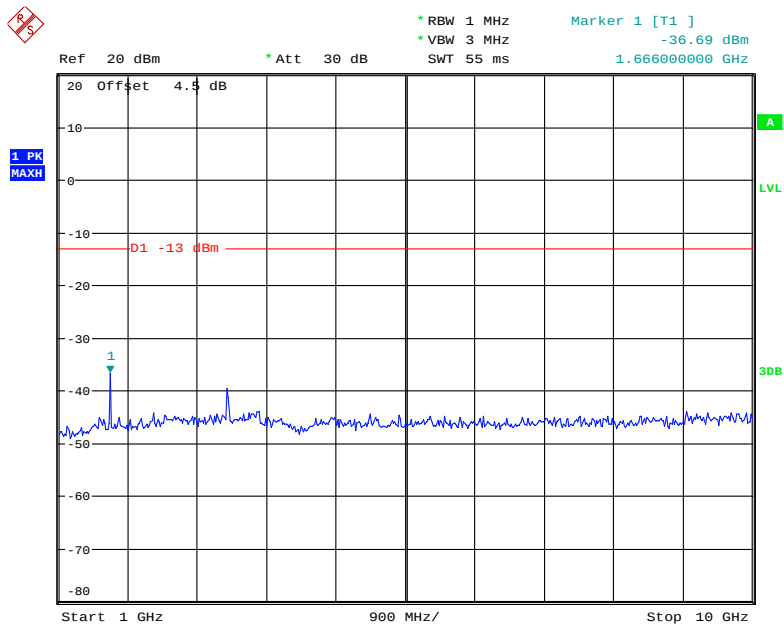


Date: 6.JUN.2020 01:35:50

LTE Band 5_10 MHz_Middle_QPSK

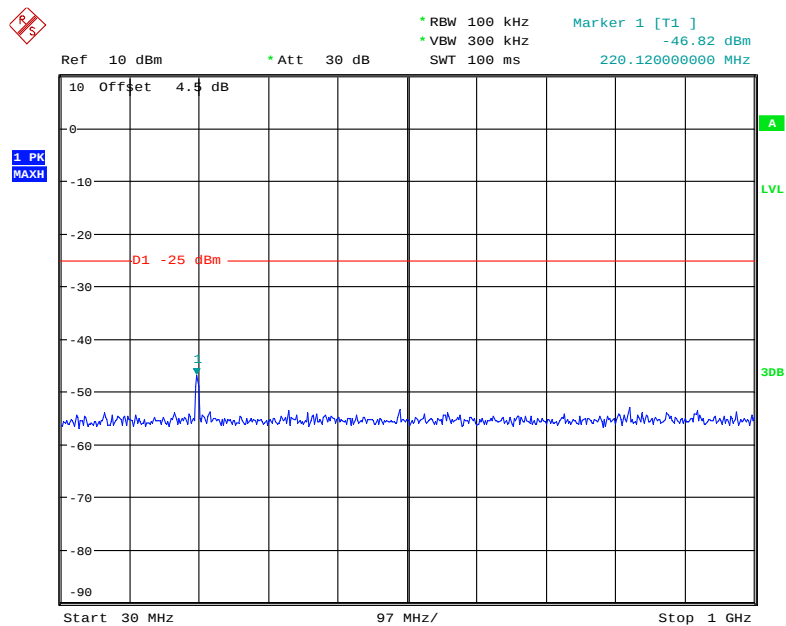


Date: 6.JUN.2020 01:36:10



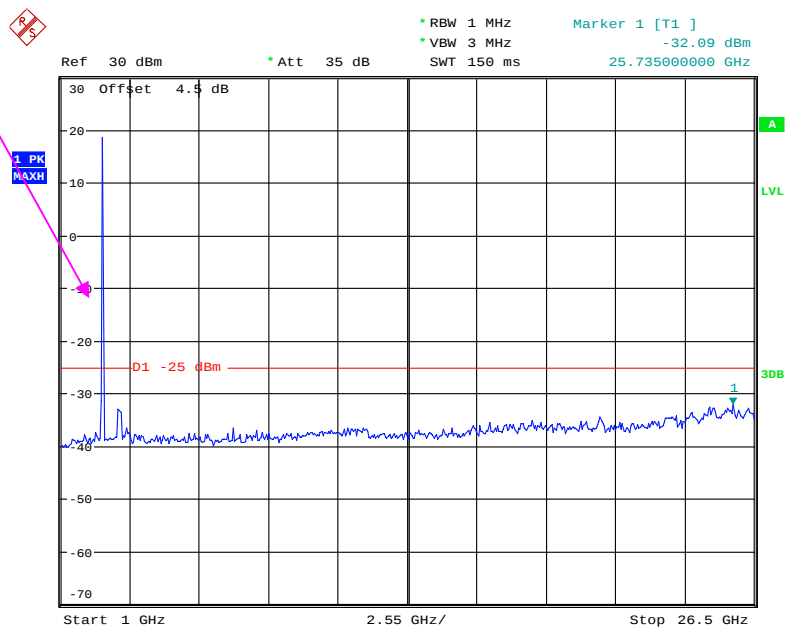
Date: 6.JUN.2020 01:36:21

LTE Band 7_5 MHz_Middle_QPSK



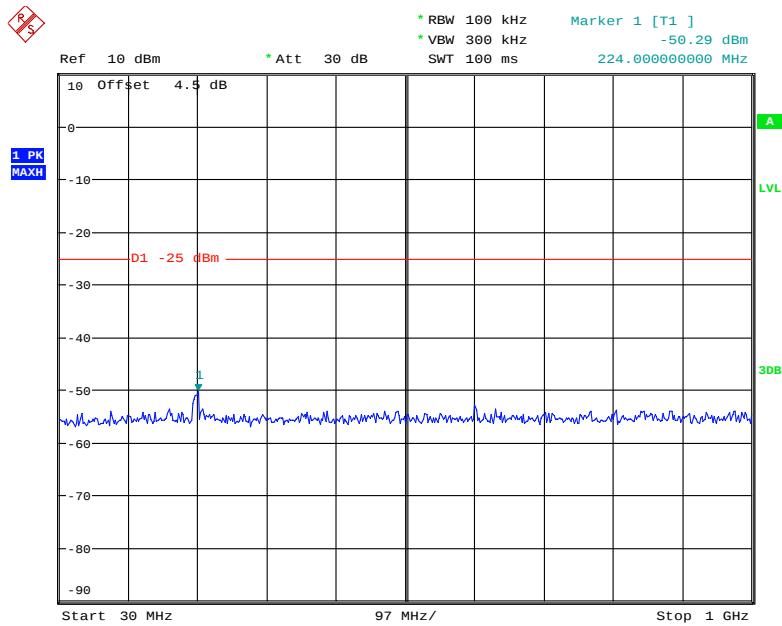
Date: 6.JUN.2020 01:36:41

Fundamental



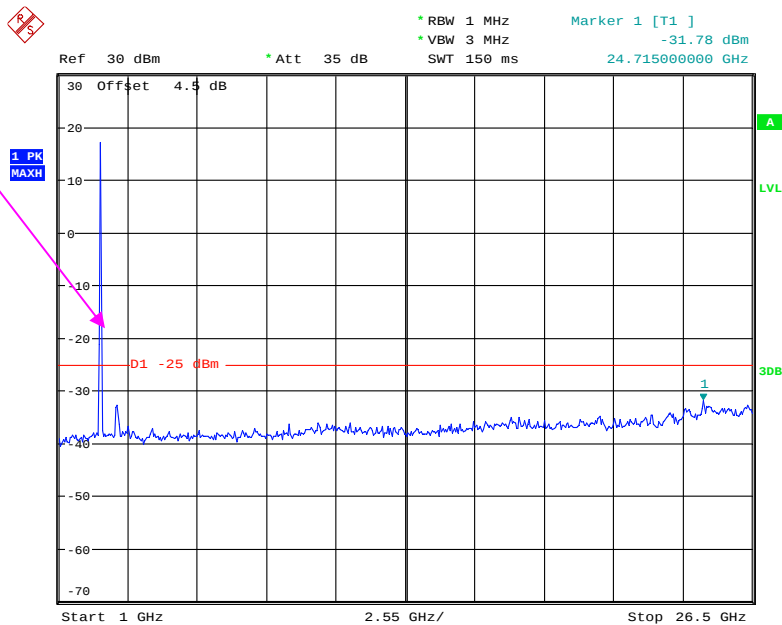
Date: 6.JUN.2020 01:36:53

LTE Band 7_10 MHz_Middle_QPSK



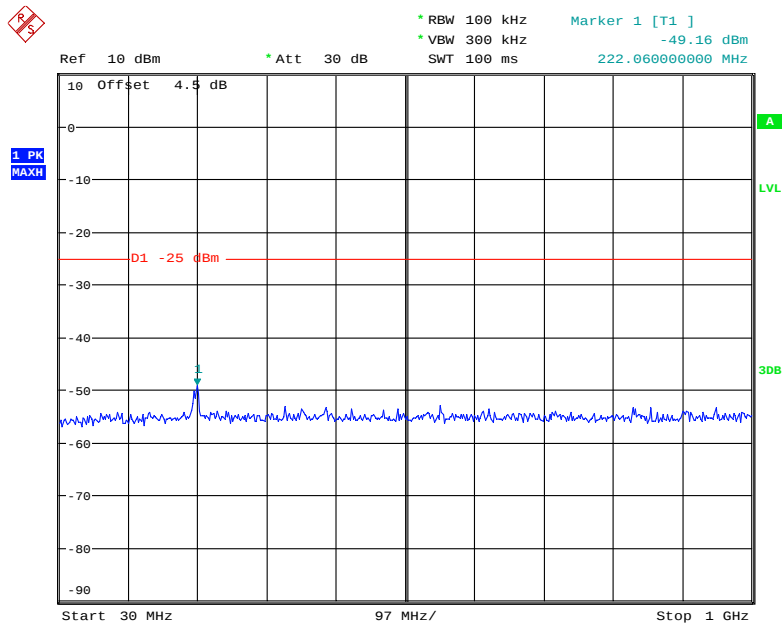
Date: 6.JUN.2020 01:37:13

Fundamental



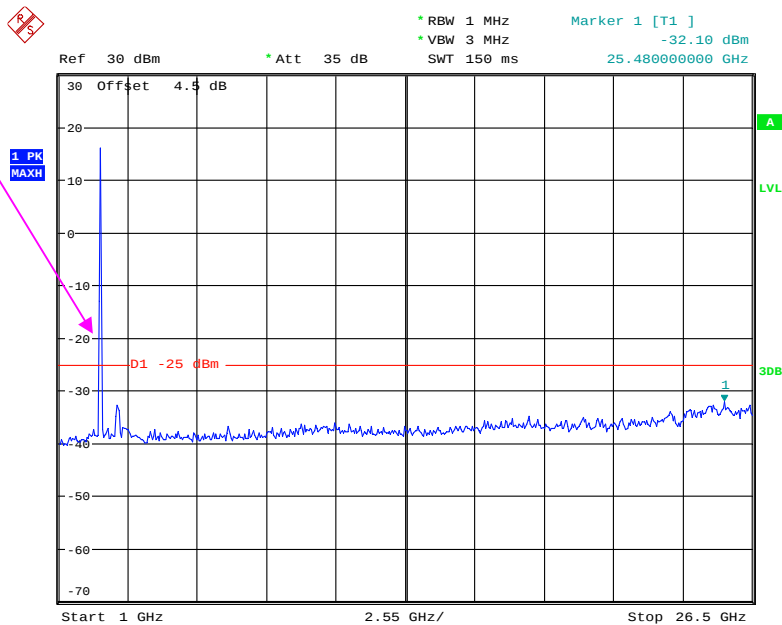
Date: 6.JUN.2020 01:37:24

LTE Band 7_15 MHz_Middle_QPSK



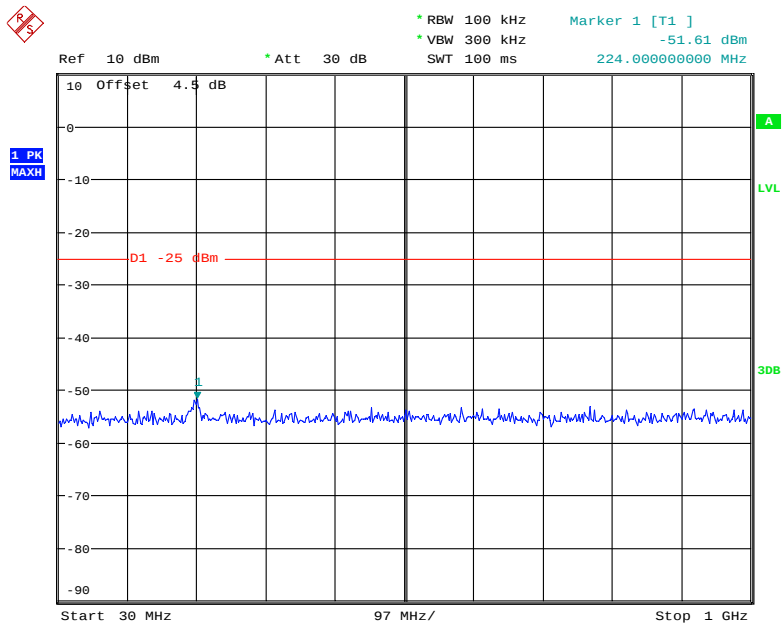
Date: 6.JUN.2020 01:37:49

Fundamental



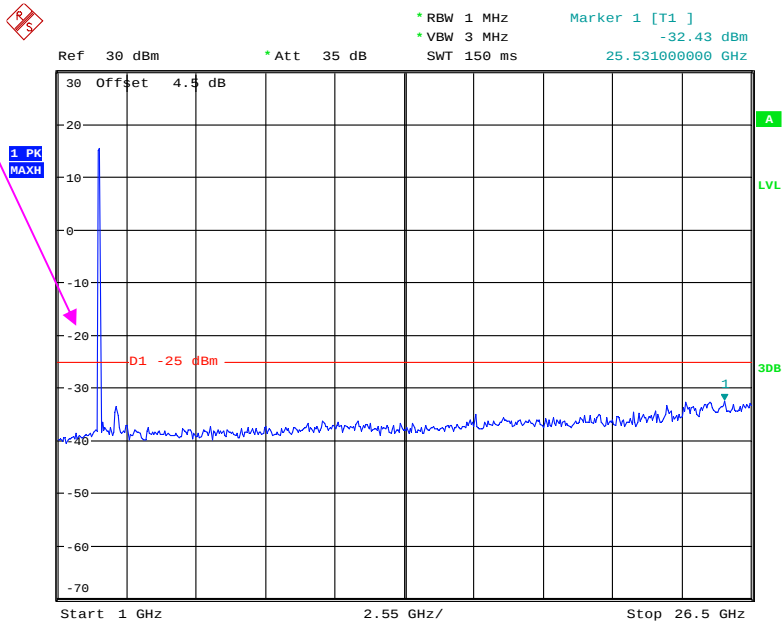
Date: 6.JUN.2020 01:38:01

LTE Band7_20 MHz_Middle_QPSK



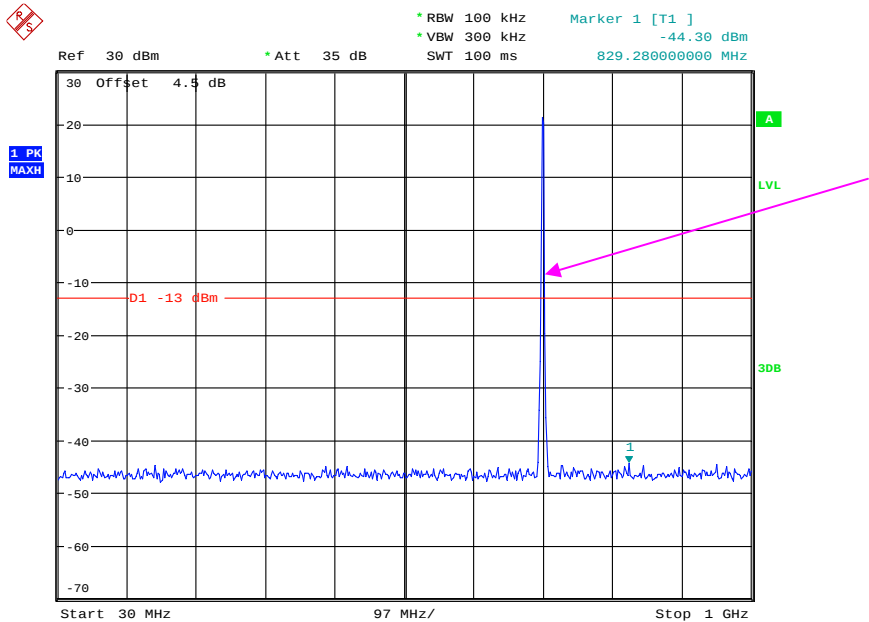
Date: 6.JUN.2020 01:38:23

Fundamental

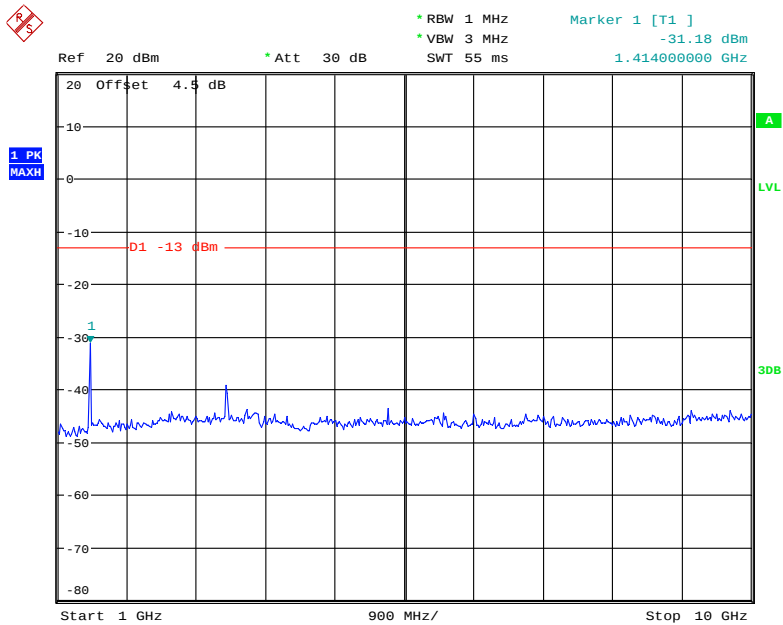


Date: 6.JUN.2020 01:38:35

LTE Band 12_1.4 MHz_Middle_QPSK

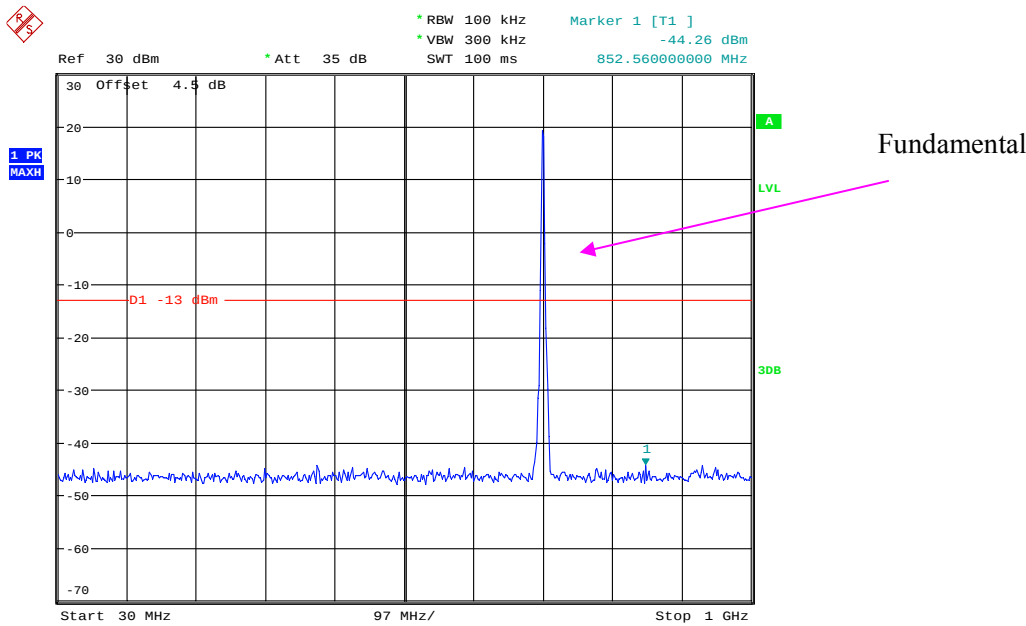


Date: 6.JUN.2020 01:38:55

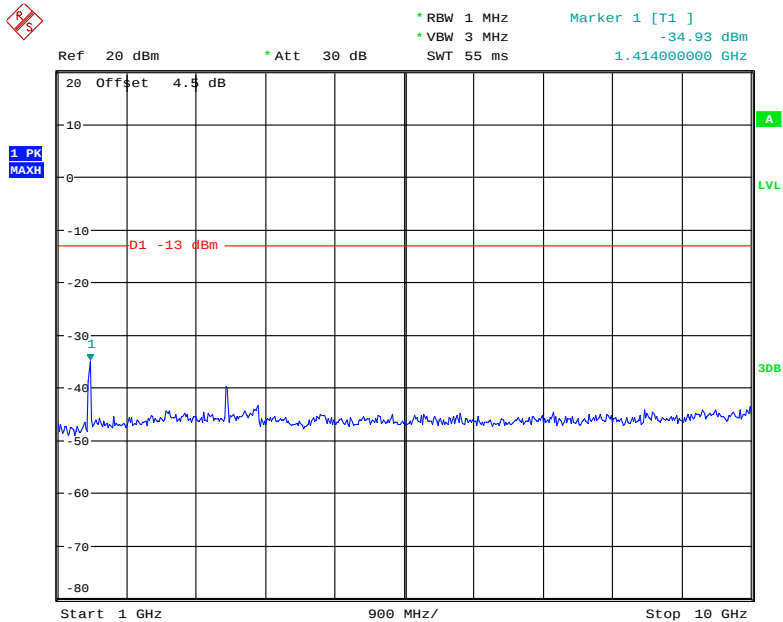


Date: 6.JUN.2020 01:39:07

LTE Band 12_3 MHz_Middle_QPSK

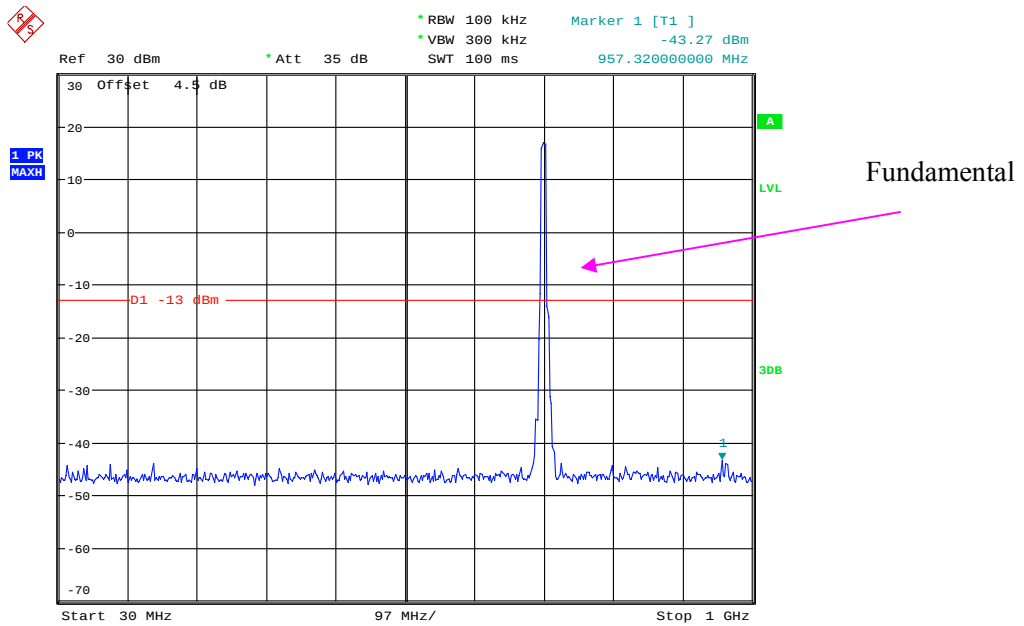


Date: 6.JUN.2020 01:39:25

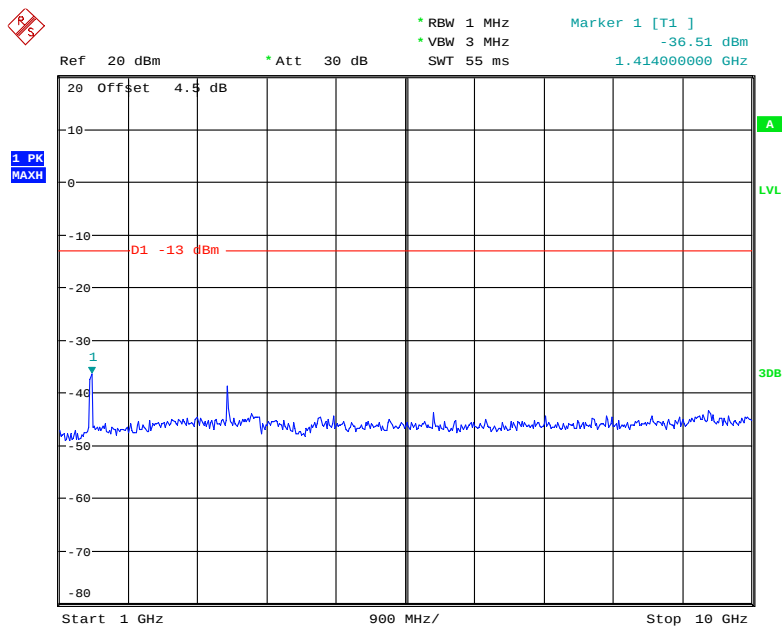


Date: 6.JUN.2020 01:39:37

LTE Band 12_5 MHz_Middle_QPSK

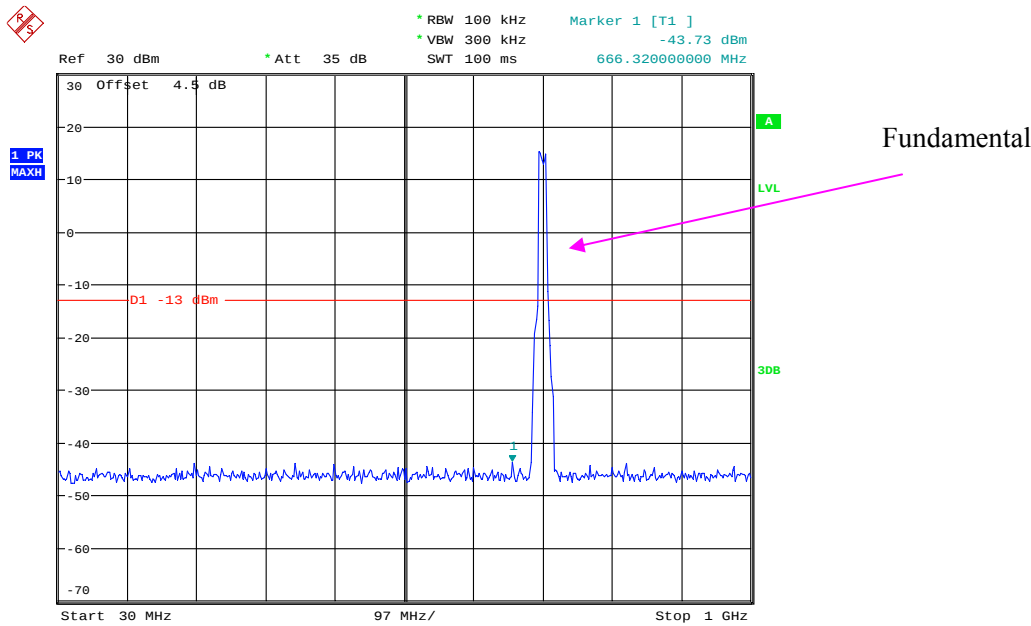


Date: 6.JUN.2020 01:39:56

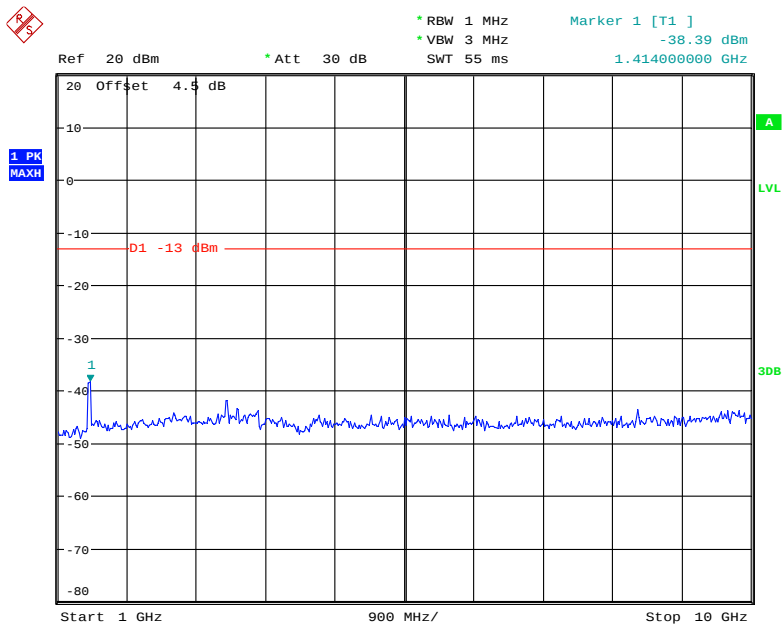


Date: 6.JUN.2020 01:40:07

LTE Band 12_10 MHz_Middle_QPSK

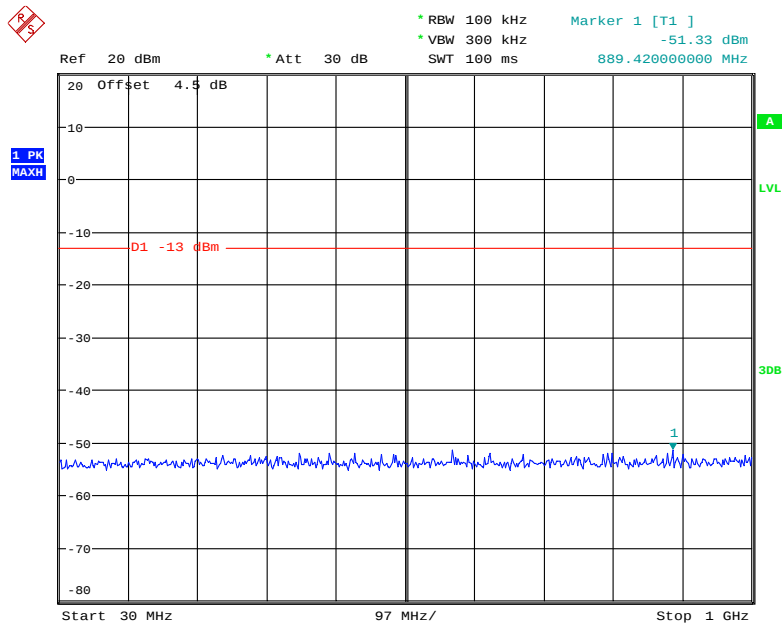


Date: 6.JUN.2020 01:40:30



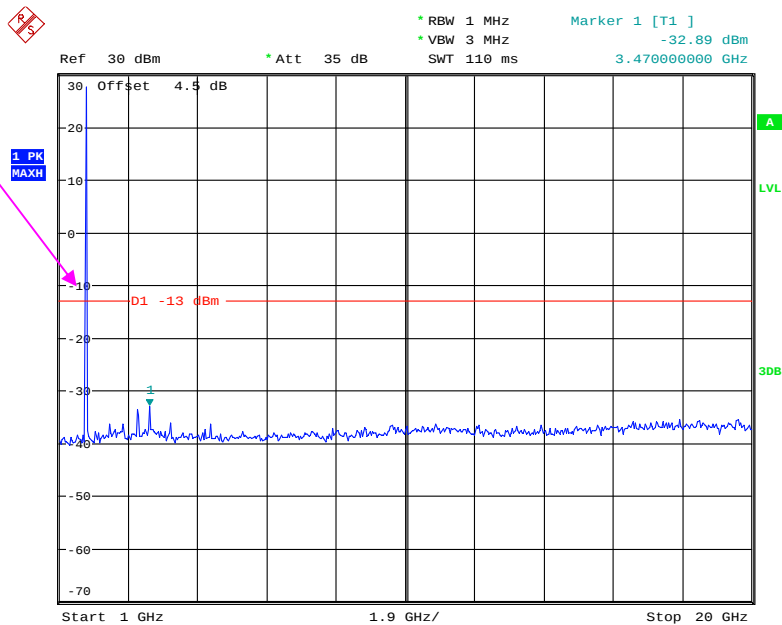
Date: 6.JUN.2020 01:40:42

LTE Band 66_1.4 MHz_Middle_QPSK



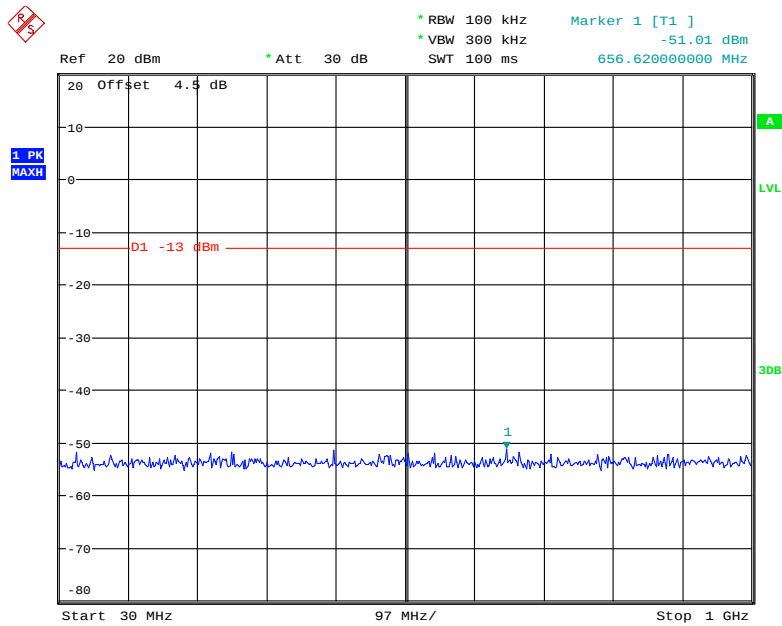
Date: 6.JUN.2020 01:41:01

Fundamental



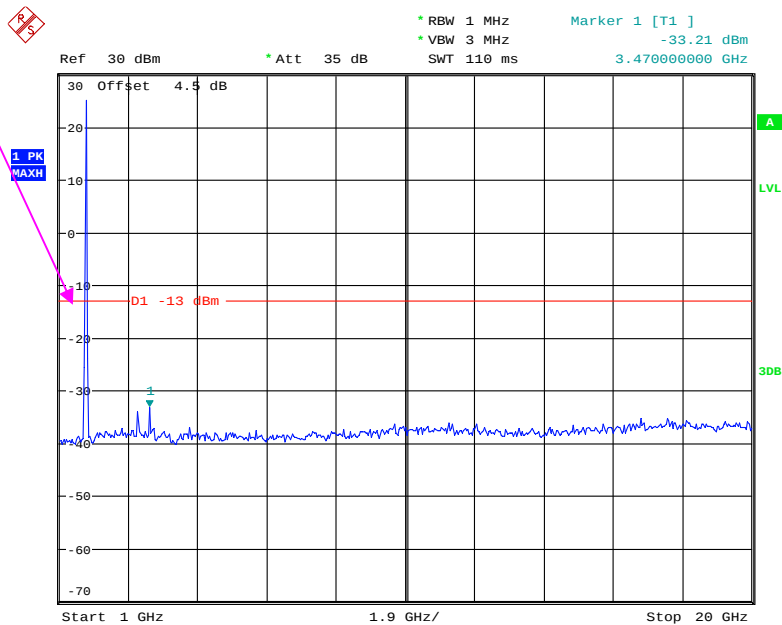
Date: 6.JUN.2020 01:41:12

LTE Band 66_3 MHz_Middle_QPSK



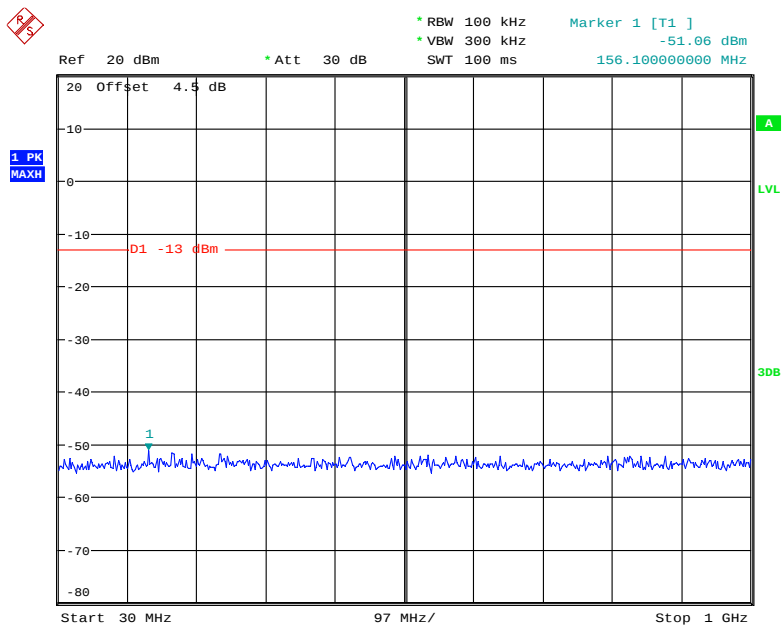
Date: 6.JUN.2020 01:41:31

Fundamental



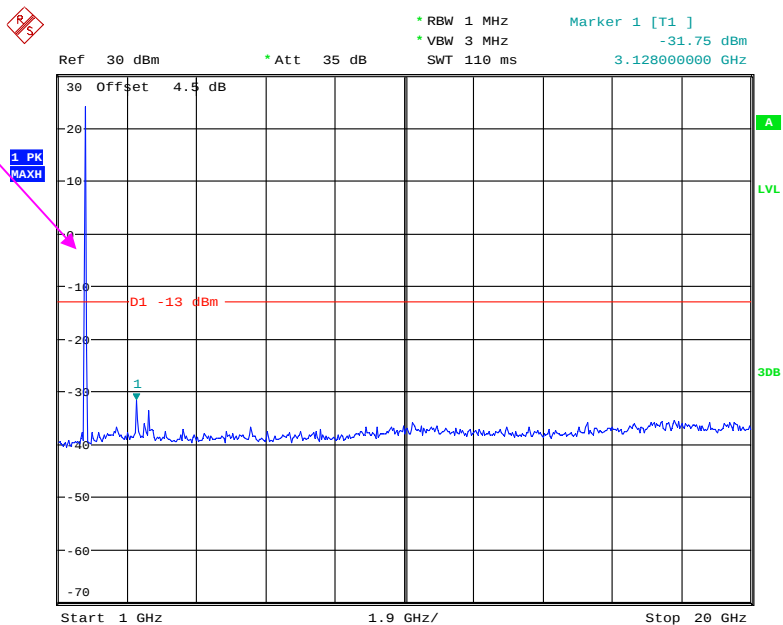
Date: 6.JUN.2020 01:41:43

LTE Band 66_5 MHz_Middle_QPSK



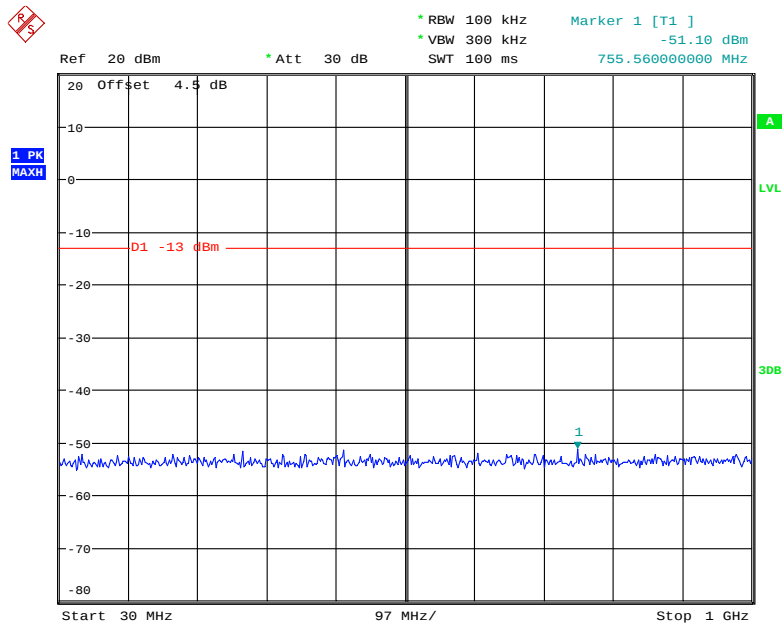
Date: 6.JUN.2020 01:42:01

Fundamental



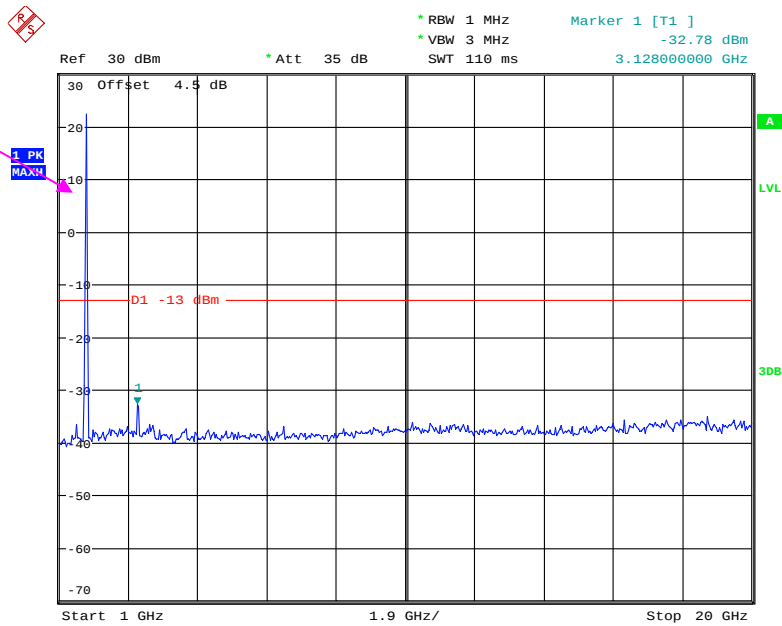
Date: 6.JUN.2020 01:42:13

LTE Band 66_10 MHz_Middle_QPSK



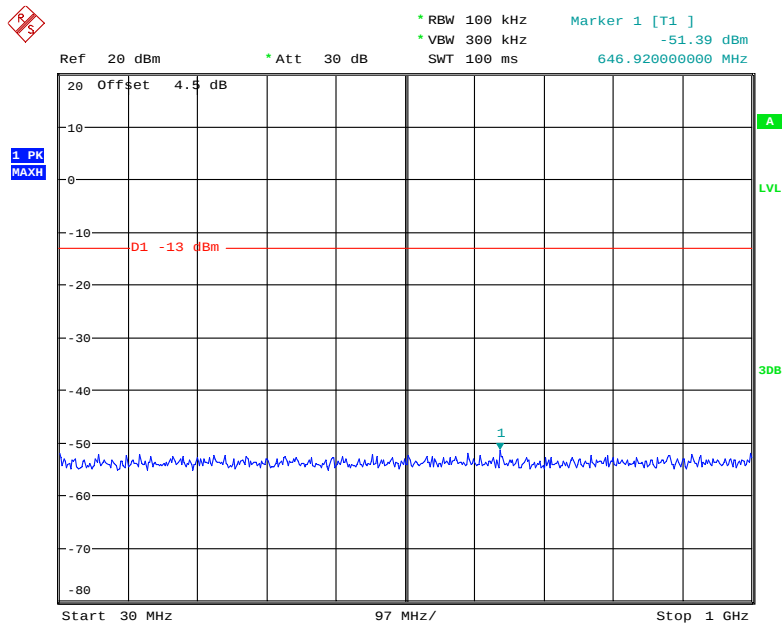
Date: 6.JUN.2020 01:42:36

Fundamental

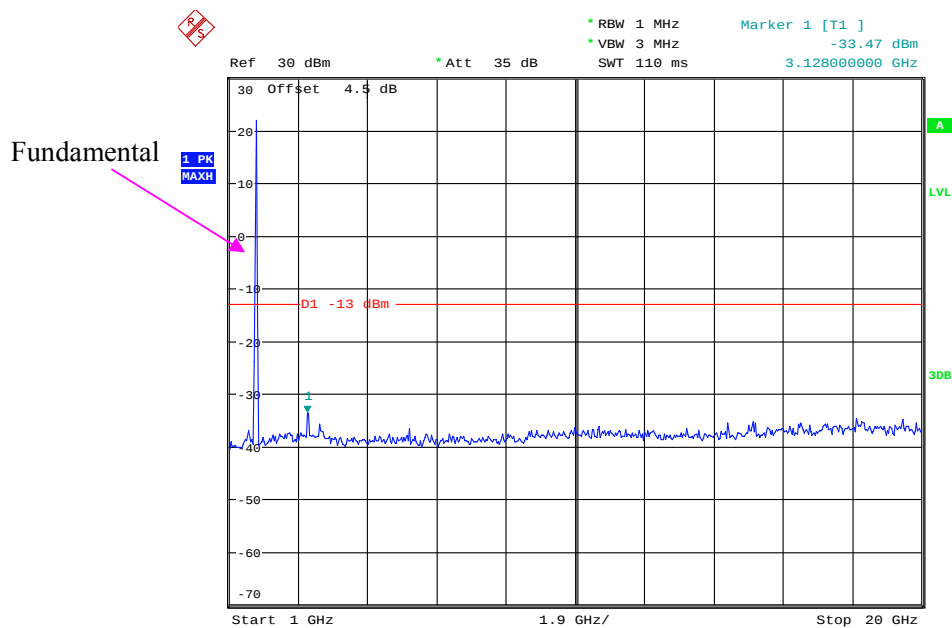


Date: 6.JUN.2020 01:42:48

LTE Band 66_15 MHz_Middle_QPSK

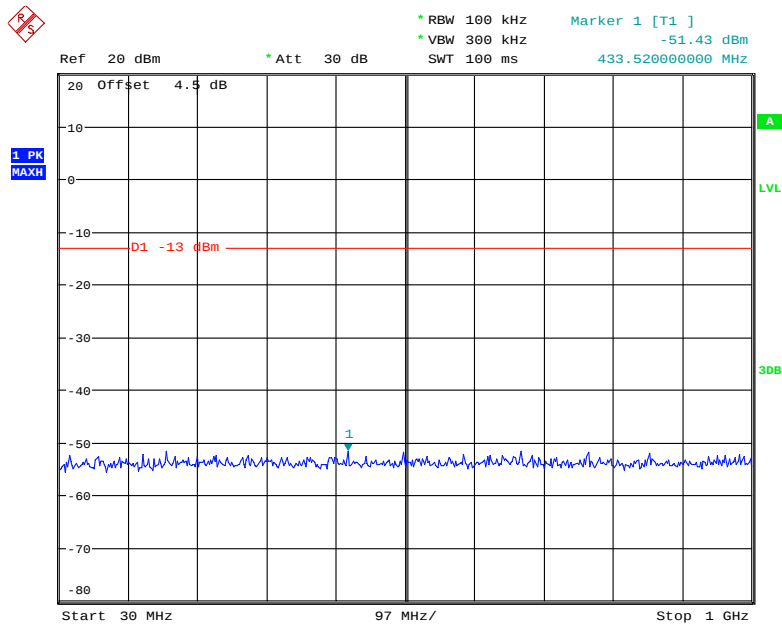


Date: 6.JUN.2020 01:43:10

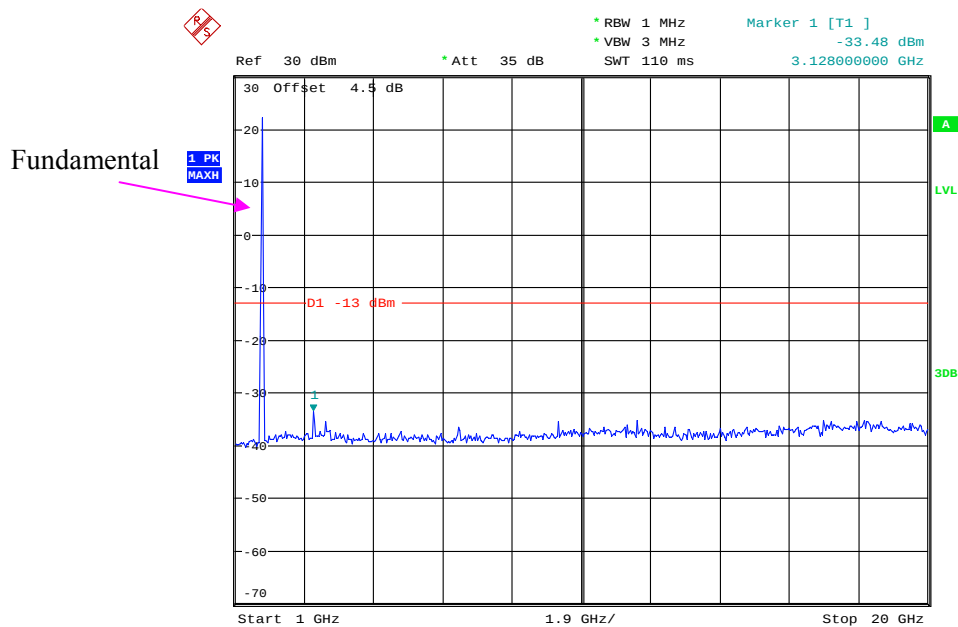


Date: 6.JUN.2020 01:43:21

LTE Band 66_20 MHz_Middle_QPSK

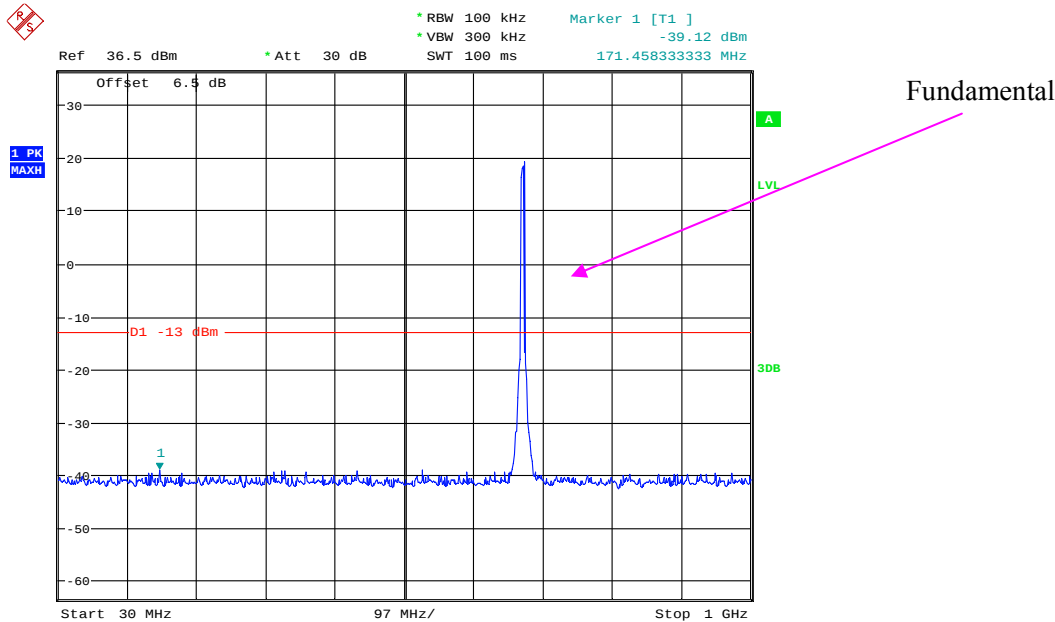


Date: 6.JUN.2020 01:43:43

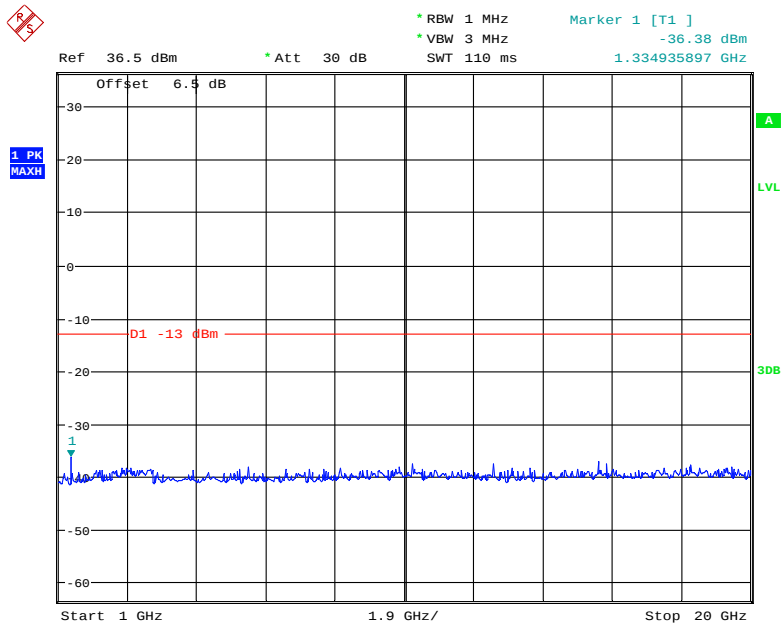


Date: 6.JUN.2020 01:43:55

LTE Band 71_5 MHz_Middle_QPSK

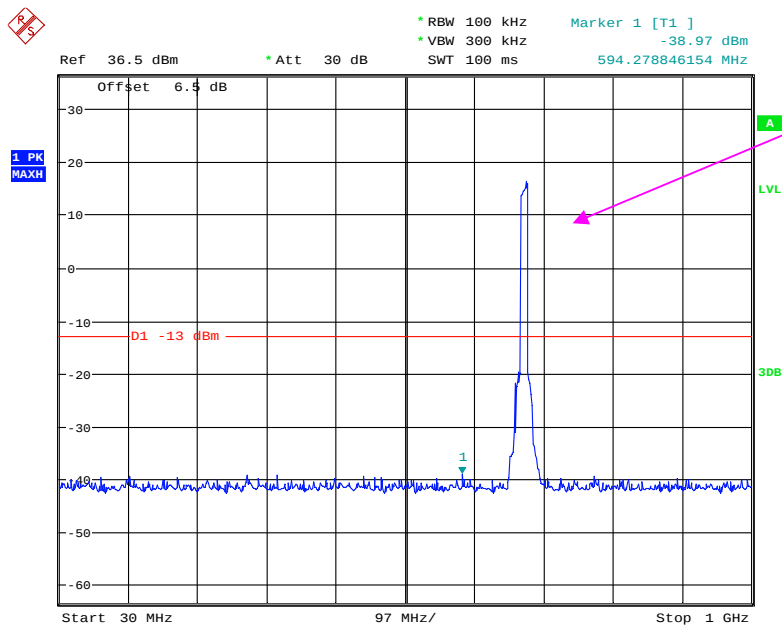


Date: 17.JUN.2020 16:22:14



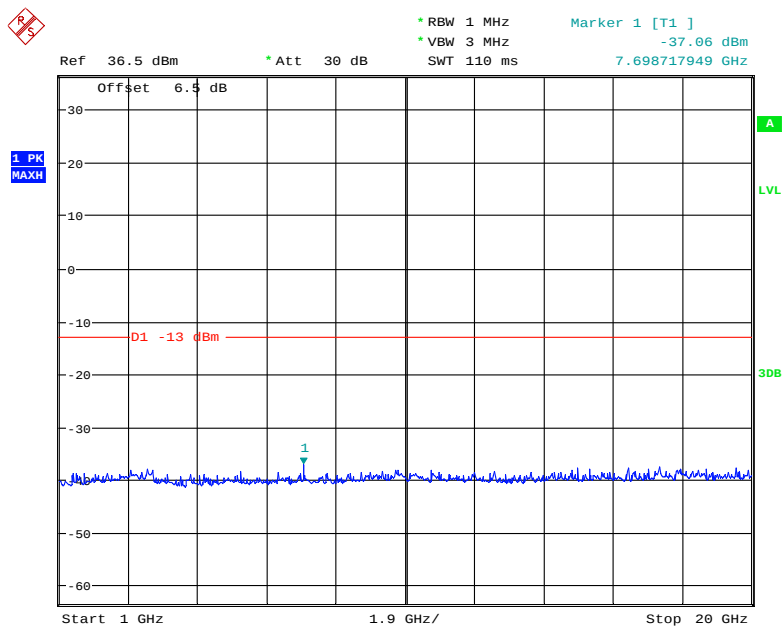
Date: 17.JUN.2020 16:20:54

LTE Band 71_10 MHz_Middle_QPSK



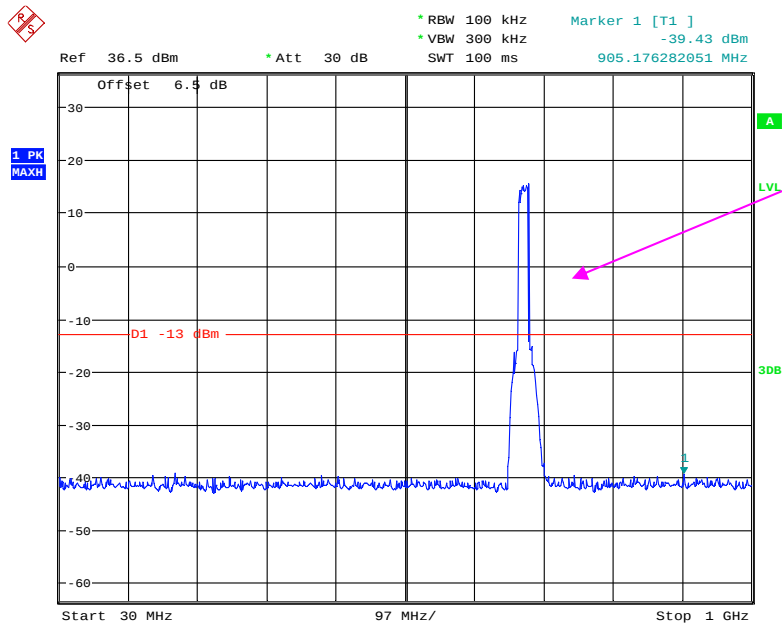
Fundamental

Date: 17.JUN.2020 16:18:47

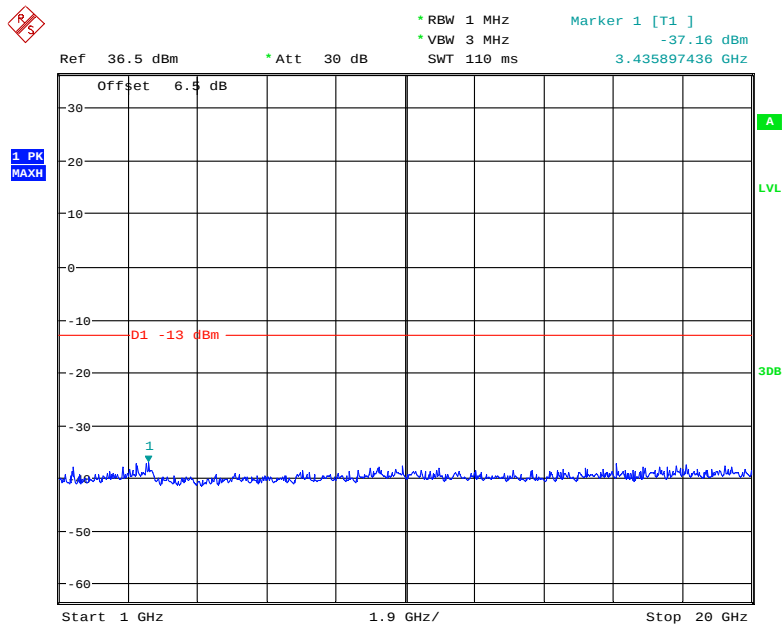


Date: 17.JUN.2020 16:19:37

LTE Band 71_15 MHz_Middle_QPSK

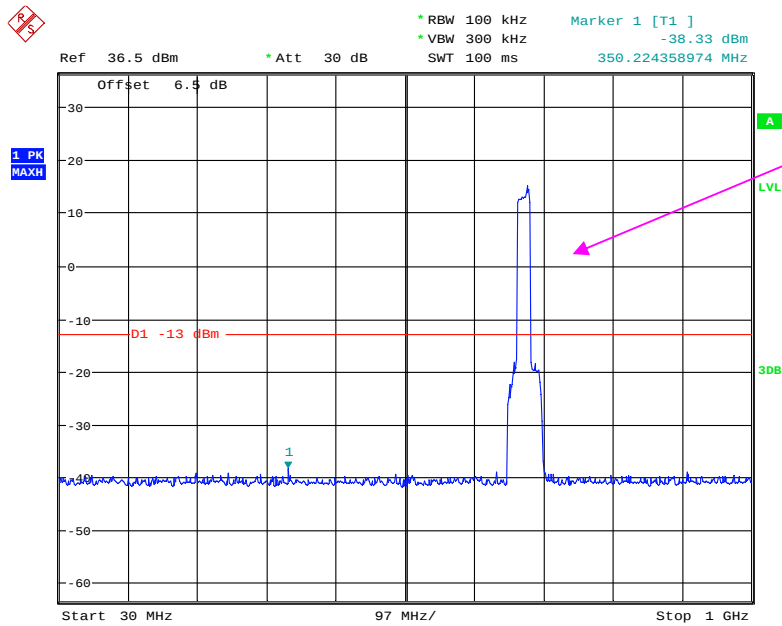


Date: 17.JUN.2020 16:17:44

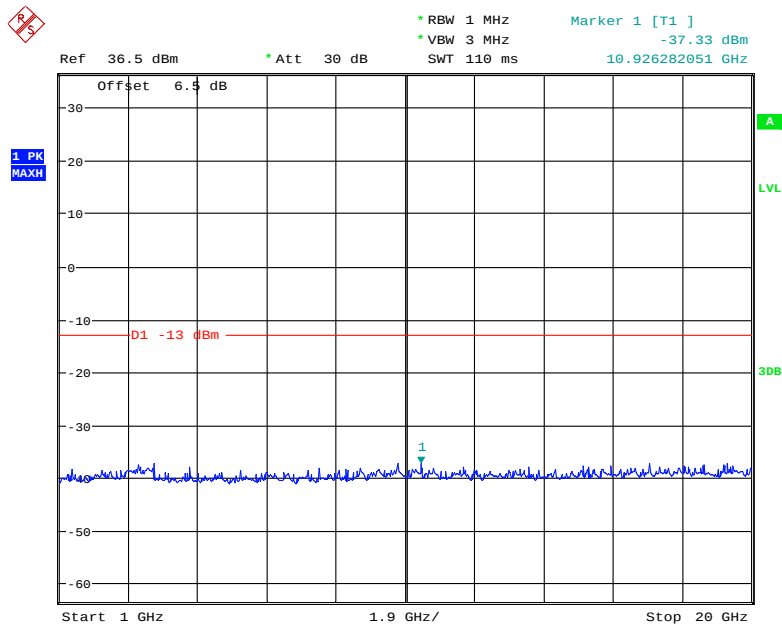


Date: 17.JUN.2020 16:16:53

LTE Band 71_20 MHz_Middle_QPSK



Date: 17.JUN.2020 16:14:21



Date: 17.JUN.2020 16:15:51

FCC §2.1053, §22.917 & §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53;

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{Log}_{10} (\text{power out in Watts})$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation Below 1G Test					
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Radiation Above 1G Test					
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-05-09	2021-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2019-09-05	2020-09-05
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2019-06-16	2020-06-16
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Sinoscite	Band-stop filter	BSF1710-1785MN-0383-003	0383003	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF1850-1910MS-0935V2	0935V2	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF2500-2750MS-1439-001	1437001	2019-06-16	2020-06-16
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-12-06	2020-12-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2019-06-27	2020-06-27

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Test Items:	Radiation Below 1GHz	Radiation Above 1GHz
Temperature:	25.7 °C	24.3°C
Relative Humidity:	43%	38 %
ATM Pressure:	100.8 kPa	100 kPa
Tester:	Joker Chen	Bond Qin
Test Date:	2020-06-05	2020-06-07

Test Result: Compliance.

EUT Operation Mode: Transmitting

Cellular Band (PART 22H)**30 MHz-10 GHz:**

% MEASUREMENT								
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM850, Frequency:836.600 MHz								
1673.200	H	52.96	-50.98	10.6	0.73	-41.1	-13.0	28.1
1673.200	V	53.67	-50.87	10.6	0.73	-41.0	-13.0	28.0
2509.800	H	44.64	-58.27	13.1	1.25	-46.4	-13.0	33.4
2509.800	V	47.56	-55.38	13.1	1.25	-43.5	-13.0	30.5
3346.400	H	38.81	-60.87	13.8	1.61	-48.7	-13.0	35.7
3346.400	V	40.72	-59	13.8	1.61	-46.8	-13.0	33.8
126.200	H	45.36	-58.84	0.0	0.32	-59.2	-13.0	46.2
700.300	V	37.68	-66.22	0.0	0.94	-67.2	-13.0	54.2
WCDMA Band V, Frequency:836.600 MHz								
1673.200	H	52.63	-51.31	10.6	0.73	-41.4	-13.0	28.4
1673.200	V	52.28	-52.26	10.6	0.73	-42.4	-13.0	29.4
2509.800	H	43.68	-59.23	13.1	1.25	-47.4	-13.0	34.4
2509.800	V	43.59	-59.35	13.1	1.25	-47.5	-13.0	34.5
3346.400	H	41.50	-58.18	13.8	1.61	-46.0	-13.0	33.0
3346.400	V	41.20	-58.52	13.8	1.61	-46.3	-13.0	33.3
39.100	H	38.25	-54.43	-26.0	0.22	-80.6	-13.0	67.6
40.500	V	39.71	-47.96	-25.7	0.21	-73.9	-13.0	60.9

PCS Band (PART 24E)**30 MHz-20 GHz:**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM1900, Frequency:1880.000 MHz								
3760.000	H	46.31	-51.33	13.8	1.63	-39.2	-13.0	26.2
3760.000	V	45.92	-51.58	13.8	1.63	-39.5	-13.0	26.5
5640.000	H	34.02	-59.57	14.0	1.31	-46.9	-13.0	33.9
5640.000	V	34.85	-58.63	14.0	1.31	-45.9	-13.0	32.9
126.200	H	48.15	-56.05	0.0	0.32	-56.4	-13.0	43.4
857.500	V	37.93	-62.61	0.0	1	-63.6	-13.0	50.6
WCDMA Band II, Frequency:1880.000 MHz								
3760.000	H	45.80	-51.84	13.8	1.63	-39.7	-13.0	26.7
3760.000	V	45.89	-51.61	13.8	1.63	-39.5	-13.0	26.5
5640.000	H	39.16	-54.43	14.0	1.31	-41.7	-13.0	28.7
5640.000	V	39.27	-54.21	14.0	1.31	-41.5	-13.0	28.5
39.100	H	40.35	-52.33	-26.0	0.22	-78.5	-13.0	65.5
34.900	V	37.27	-43.08	-24.1	0.24	-67.4	-13.0	54.4

PCS Band (PART 27)**30 MHz-20 GHz:**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band IV, Frequency:1732.600 MHz								
3465.200	H	41.81	-57.37	13.9	1.62	-45.1	-13.0	32.1
3465.200	V	40.76	-58.46	13.9	1.62	-46.2	-13.0	33.2
5197.800	H	40.89	-53.8	14.0	1.52	-41.3	-13.0	28.3
5197.800	V	40.79	-53.97	14.0	1.52	-41.5	-13.0	28.5
39.100	H	39.12	-53.56	-26.0	0.22	-79.8	-13.0	66.8
34.900	V	36.57	-43.78	-24.1	0.24	-68.1	-13.0	55.1

LTE Band 2 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1880.000 MHz								
3760.00	H	41.95	-58.26	12.25	1.53	-47.54	-13.00	34.54
3760.00	V	39.60	-60.31	12.25	1.53	-49.59	-13.00	36.59
5640.00	H	35.12	-60.18	13.00	1.28	-48.46	-13.00	35.46
5640.00	V	35.02	-60.59	13.00	1.28	-48.87	-13.00	35.87
39.10	H	38.79	-53.89	-25.97	0.22	-80.08	-13.00	67.08
39.10	V	40.88	-45.02	-25.97	0.22	-71.21	-13.00	58.21

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1732.500 MHz								
3465.00	H	44.36	-56.61	12.21	1.60	-46.00	-13.00	33.00
3465.00	V	43.20	-56.36	12.21	1.60	-45.75	-13.00	32.75
5197.50	H	35.89	-60.19	12.92	1.36	-48.63	-13.00	35.63
5197.50	V	35.21	-60.84	12.92	1.36	-49.28	-13.00	36.28
39.10	H	40.75	-51.93	-25.97	0.22	-78.12	-13.00	65.12
40.50	V	41.36	-46.31	-25.74	0.21	-72.26	-13.00	59.26

LTE Band 5(30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 836.500 MHz								
1673.00	H	43.19	-61.19	10.52	1.27	-51.94	-13.00	38.94
1673.00	V	41.14	-63.17	10.52	1.27	-53.92	-13.00	40.92
2509.50	H	40.39	-62.38	12.20	1.24	-51.42	-13.00	38.42
2509.50	V	40.05	-64.11	12.20	1.24	-53.15	-13.00	40.15
3346.00	H	36.46	-64.73	12.26	1.58	-54.05	-13.00	41.05
3346.00	V	35.85	-64.27	12.26	1.58	-53.59	-13.00	40.59
39.10	H	39.91	-52.77	-25.97	0.22	-78.96	-13.00	65.96
40.50	V	40.42	-47.25	-25.74	0.21	-73.20	-13.00	60.20

LTE Band 7(30MHz-26.5GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 2535.000 MHz								
5070.00	H	36.89	-59.42	12.97	1.41	-47.86	-25.00	22.86
5070.00	V	36.36	-59.72	12.97	1.41	-48.16	-25.00	23.16
7605.00	H	35.87	-55.51	12.84	1.40	-44.07	-25.00	19.07
7605.00	V	35.26	-56.79	12.84	1.40	-45.35	-25.00	20.35
590.80	H	34.36	-67.96	0.00	0.76	-68.72	-25.00	43.72
880.00	V	37.56	-62.24	0.00	1.03	-63.27	-25.00	38.27

LTE Band 12 (30MHz-10GHz):

ETB Band 12 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 707.500 MHz								
1415.00	H	38.56	-65.33	9.64	1.25	-56.94	-13.00	43.94
1415.00	V	37.86	-66.09	9.64	1.25	-57.70	-13.00	44.70
2122.50	H	38.25	-65.48	11.67	1.16	-54.97	-13.00	41.97
2122.50	V	37.20	-66.84	11.67	1.16	-56.33	-13.00	43.33
2830.00	H	36.78	-65.38	12.33	1.41	-54.46	-13.00	41.46
2830.00	V	36.52	-66.05	12.33	1.41	-55.13	-13.00	42.13
39.10	H	39.86	-52.82	-25.97	0.22	-79.01	-13.00	66.01
39.10	V	40.08	-45.82	-25.97	0.22	-72.01	-13.00	59.01

LTE Band 66 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 1745.000 MHz								
3490.00	H	44.36	-56.56	12.20	1.61	-45.97	-13.00	32.97
3490.00	V	41.96	-57.49	12.20	1.61	-46.90	-13.00	33.9
5235.00	H	35.25	-60.77	12.91	1.35	-49.21	-13.00	36.21
5235.00	V	35.12	-60.93	12.91	1.35	-49.37	-13.00	36.37
39.10	H	39.58	-53.10	-25.97	0.22	-79.29	-13.00	66.29
40.50	V	40.77	-46.90	-25.74	0.21	-72.85	-13.00	59.85

LTE Band 71 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 680.500 MHz								
39.10	H	39.58	-53.10	-25.97	0.22	-79.29	-13.00	66.29
39.10	V	40.08	-45.82	-25.97	0.22	-72.01	-13.00	59.01
1361.00	H	42.35	-65.80	1.60	7.90	-59.50	-13.00	46.50
1361.00	V	41.99	-66.40	1.60	7.90	-60.10	-13.00	47.10
2041.50	H	43.86	-56.70	1.30	9.60	-48.40	-13.00	35.40
2041.50	V	43.62	-57.30	1.30	9.60	-49.00	-13.00	36.00
2722.00	H	45.53	-57.60	2.00	10.40	-49.20	-13.00	36.20
2722.00	V	44.30	-58.40	2.00	10.40	-50.00	-13.00	37.00
6883.81	H	50.36	-47.40	1.80	11.30	-37.90	-13.00	24.90
6883.81	V	49.29	-48.50	1.80	11.30	-39.00	-13.00	26.00

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level

FCC §22.917(a) & §24.238(a) & §27.53 - BAND EDGES

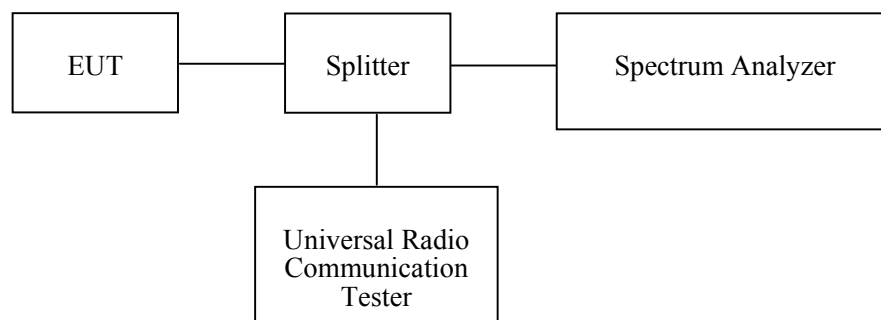
Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
R&S	Spectrum Analyzer	FSP 38	100478	2020-05-09	2021-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41002201	Each Time	/
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each Time	/

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

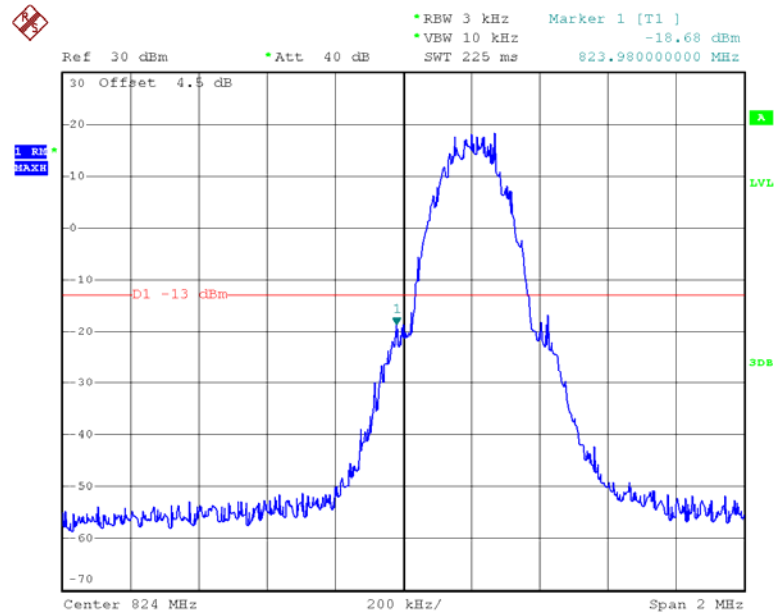
Environmental Conditions

Temperature:	27.1 °C~ 30 °C
Relative Humidity:	54%~74 %
ATM Pressure:	99.8kPa ~100.8kPa
Tester:	James Chen
Test Date:	2020-06-06~2020-06-17

Test Mode: Transmitting

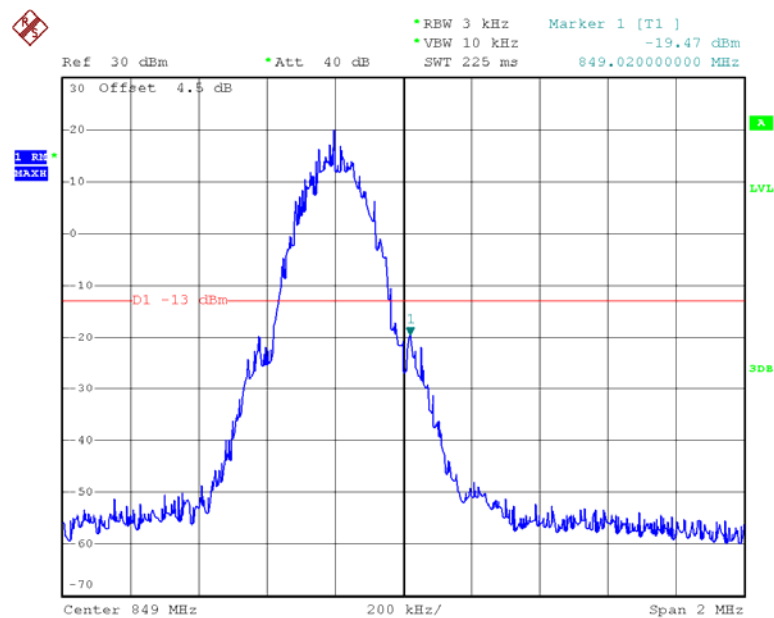
Test Result: Compliance. Please refer to the following plots.

GSM 850, Left Band Edge

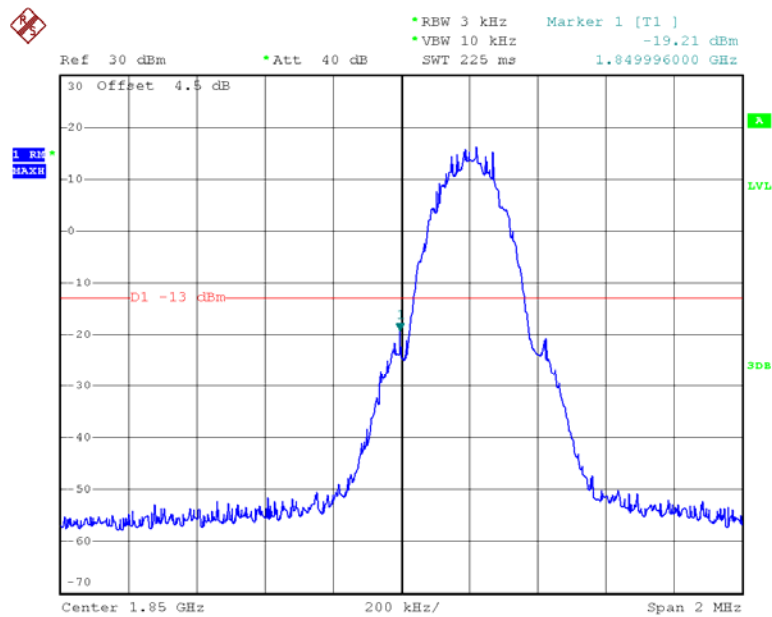


Date: 9.JUN.2020 01:10:32

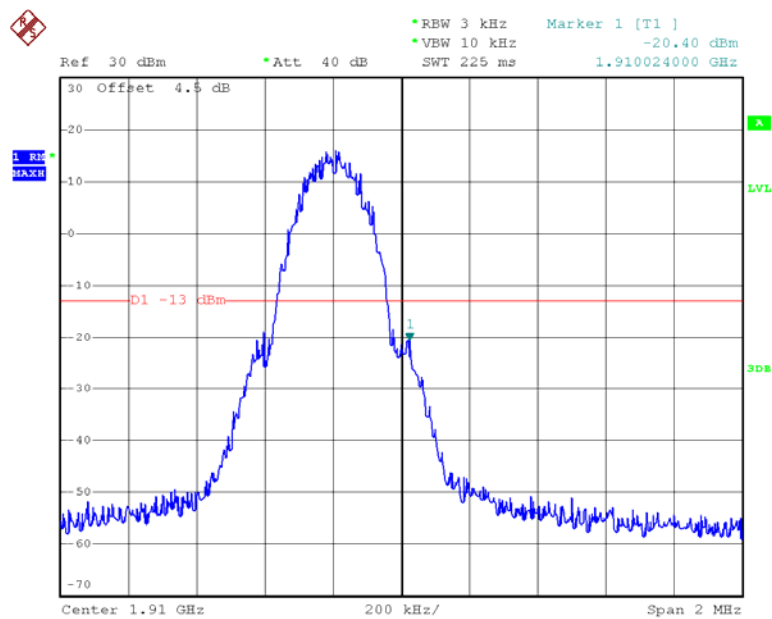
GSM 850, Right Band Edge



Date: 9.JUN.2020 01:11:34

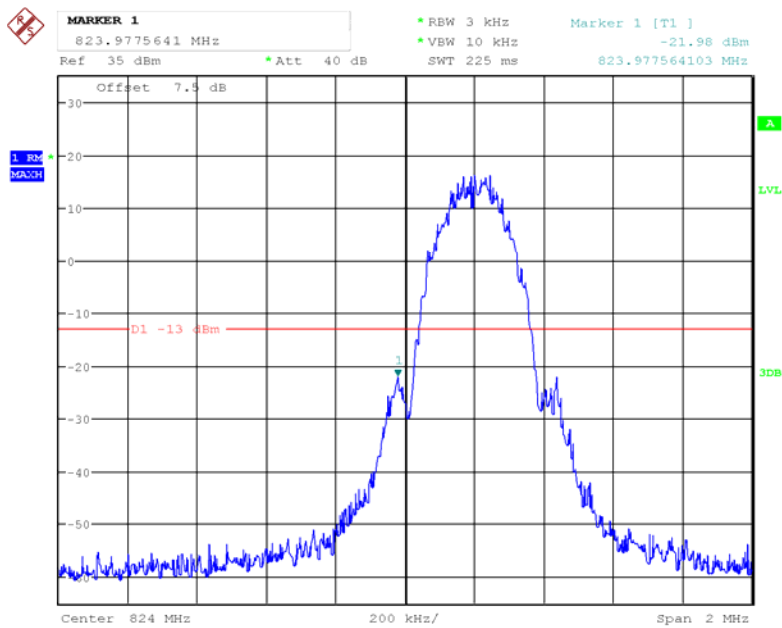
GSM 1900, Left Band Edge

Date: 9.JUN.2020 01:33:01

GSM 1900, Right Band Edge

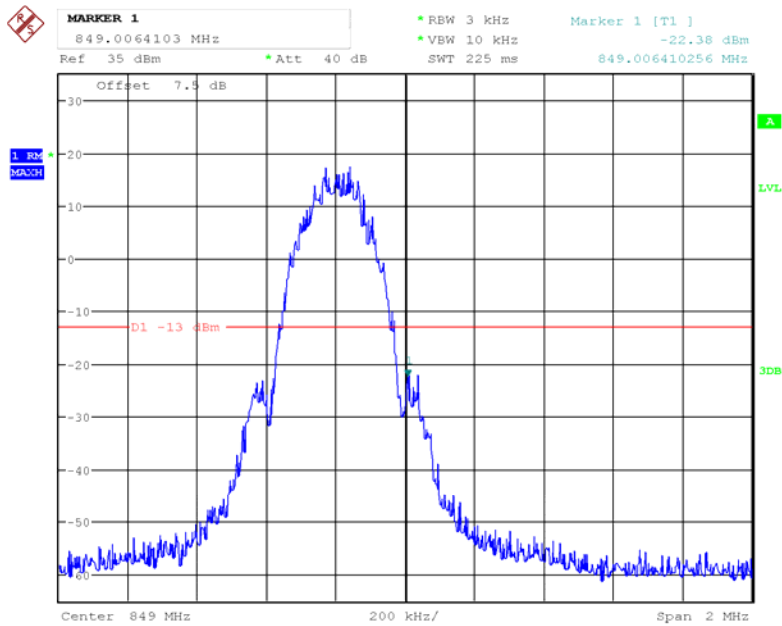
Date: 9.JUN.2020 01:34:29

EDGE 850, Left Band Edge



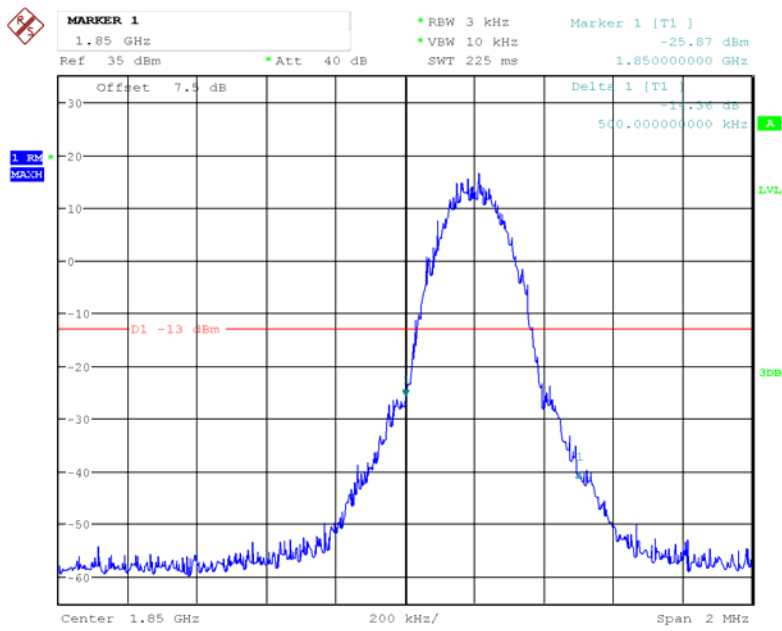
Date: 9.JUN.2020 20:42:54

EDGE 850, Right Band Edge



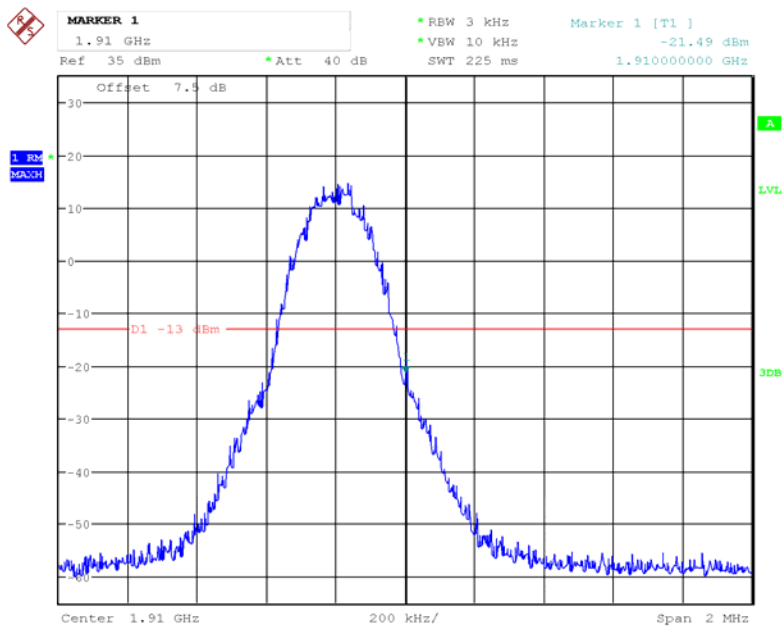
Date: 9.JUN.2020 20:43:49

EDGE 1900, Left Band Edge



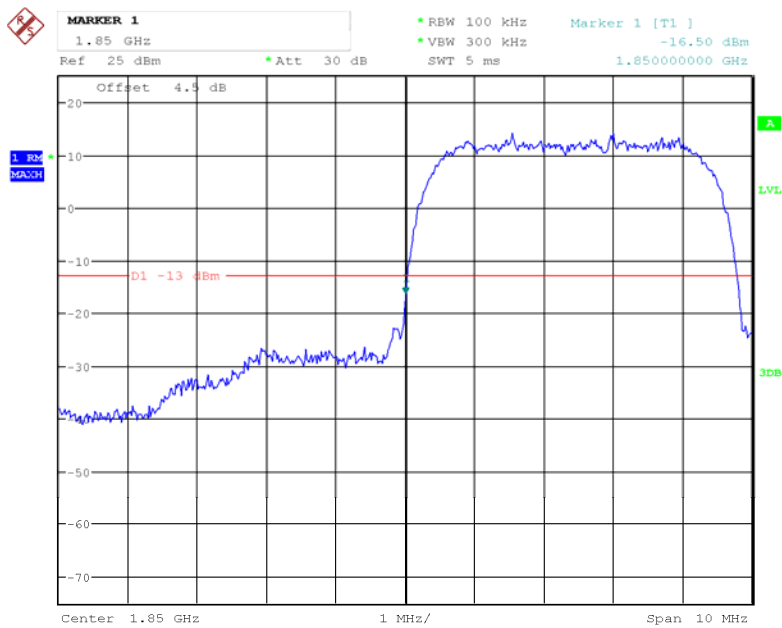
Date: 9.JUN.2020 20:37:27

EDGE 1900, Right Band Edge



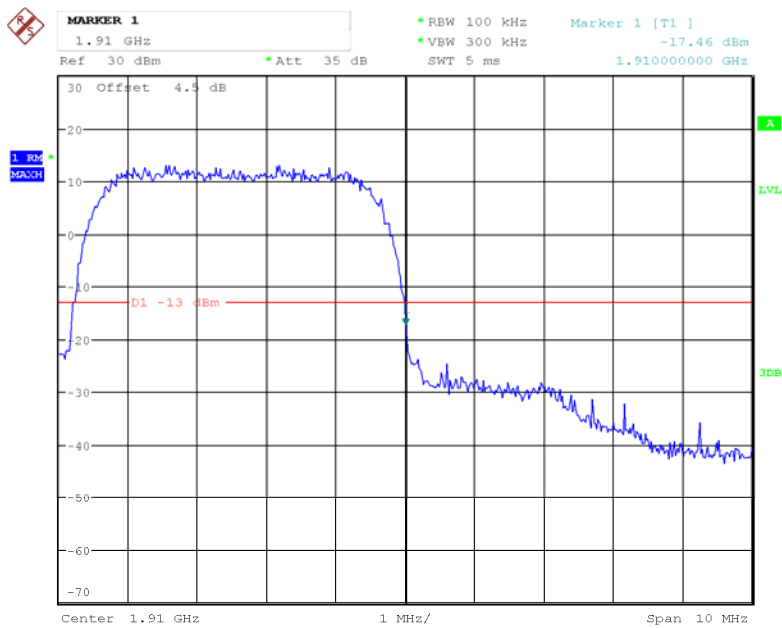
Date: 9.JUN.2020 20:39:25

WCDMA Band 2 Rel 99, Left Band Edge



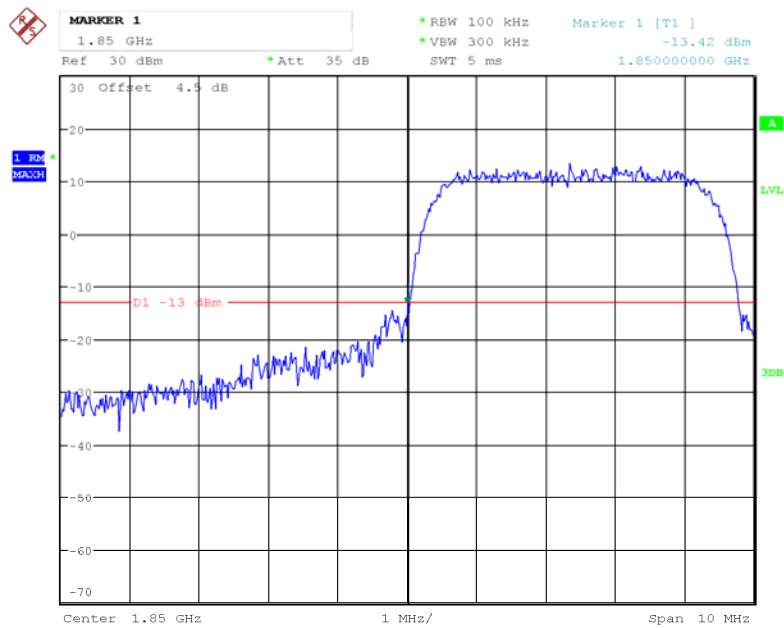
Date: 7.JUN.2020 15:14:37

WCDMA Band 2 Rel 99, Right Band Edge



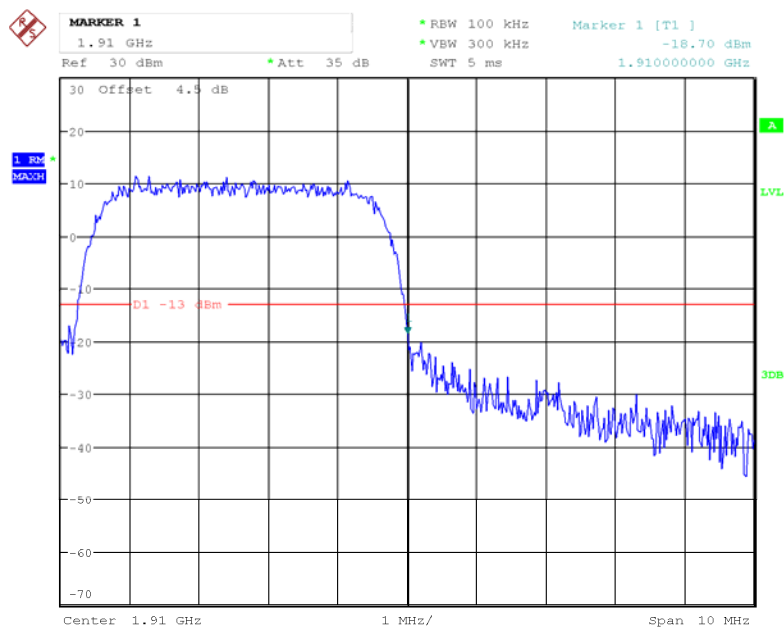
Date: 7.JUN.2020 16:02:17

WCDMA Band 2 HSDPA, Left Band Edge



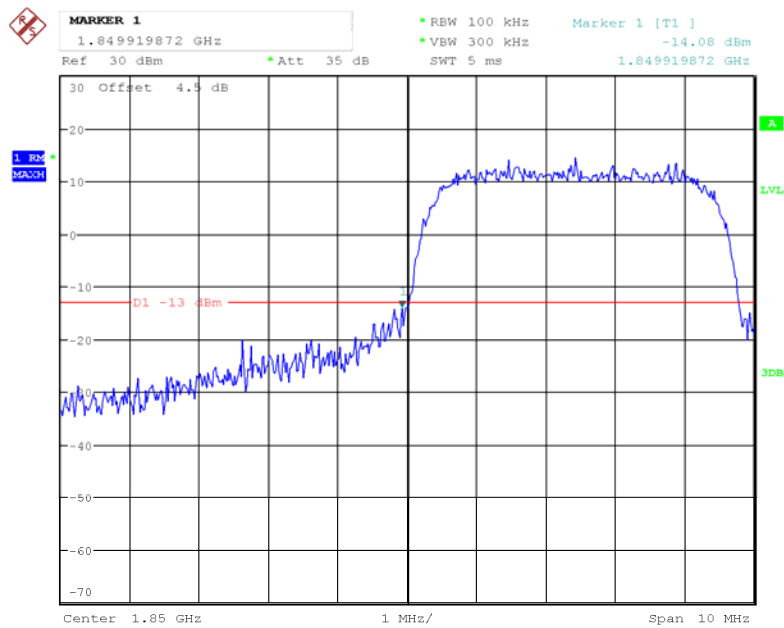
Date: 7.JUN.2020 16:08:37

WCDMA Band 2 HSDPA, Right Band Edge



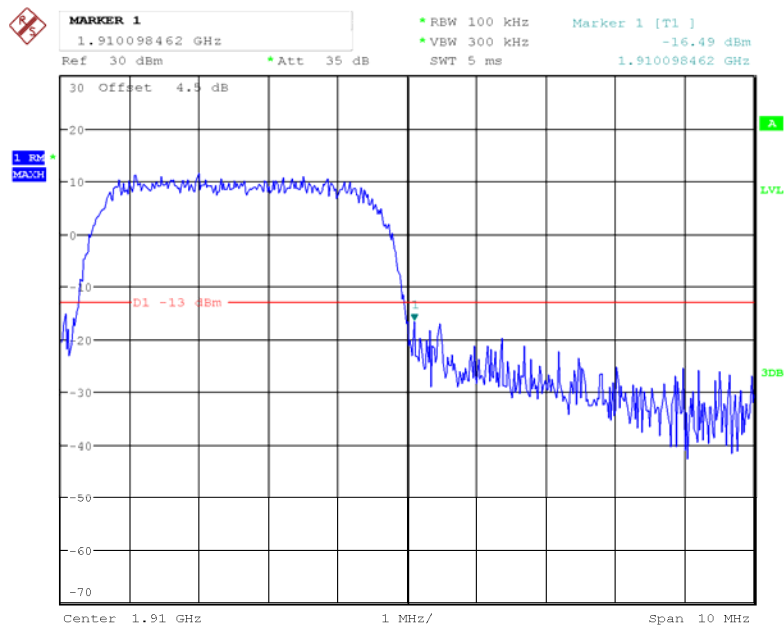
Date: 7.JUN.2020 16:09:34

WCDMA Band 2 HSUPA, Left Band Edge



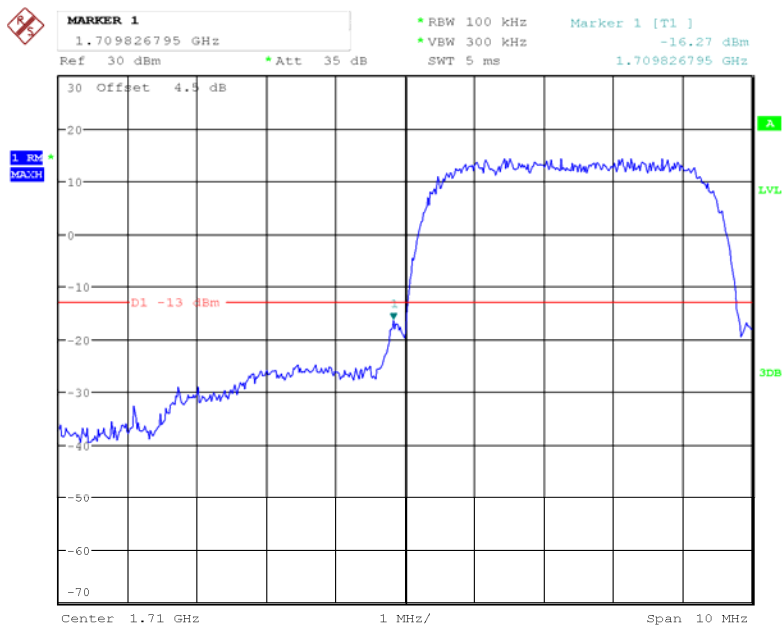
Date: 7.JUN.2020 16:18:11

WCDMA Band 2 HSUPA, Right Band Edge



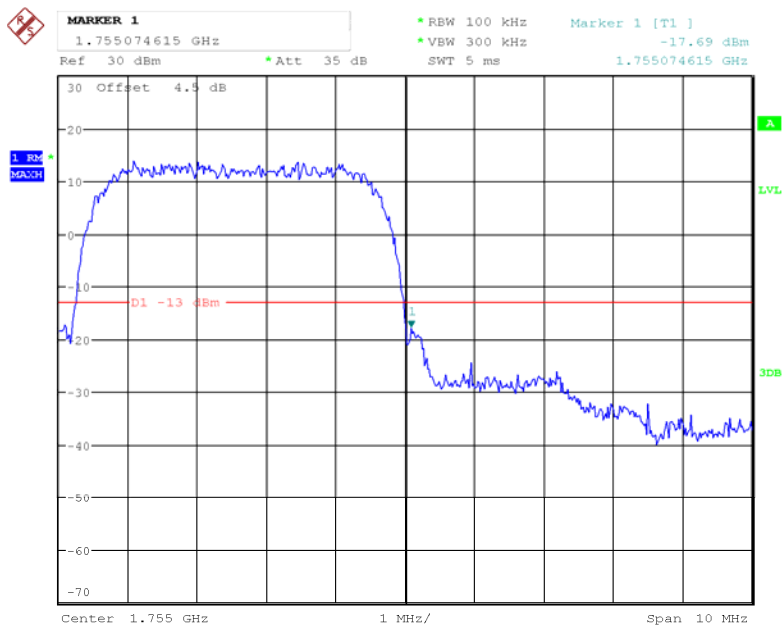
Date: 7.JUN.2020 16:19:31

WCDMA Band 4 Rel 99, Left Band Edge



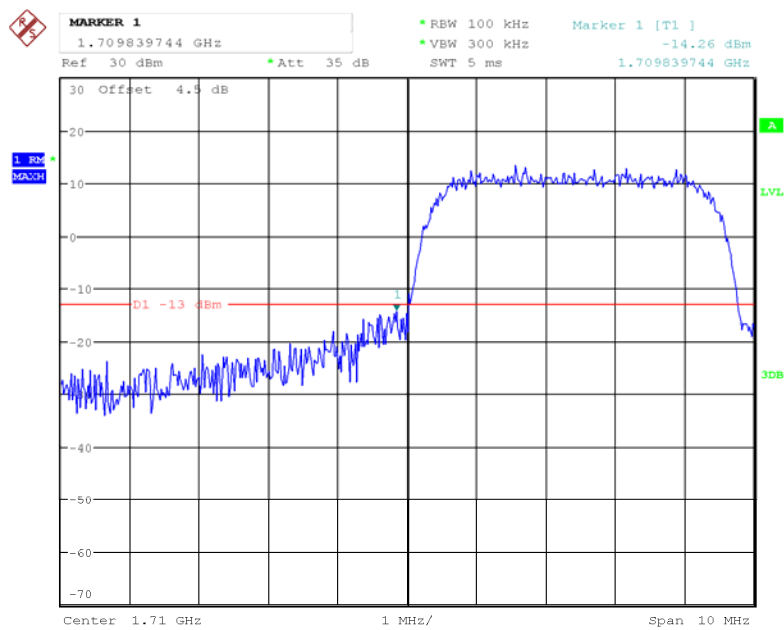
Date: 7.JUN.2020 16:00:54

WCDMA Band 4 Rel 99, Right Band Edge



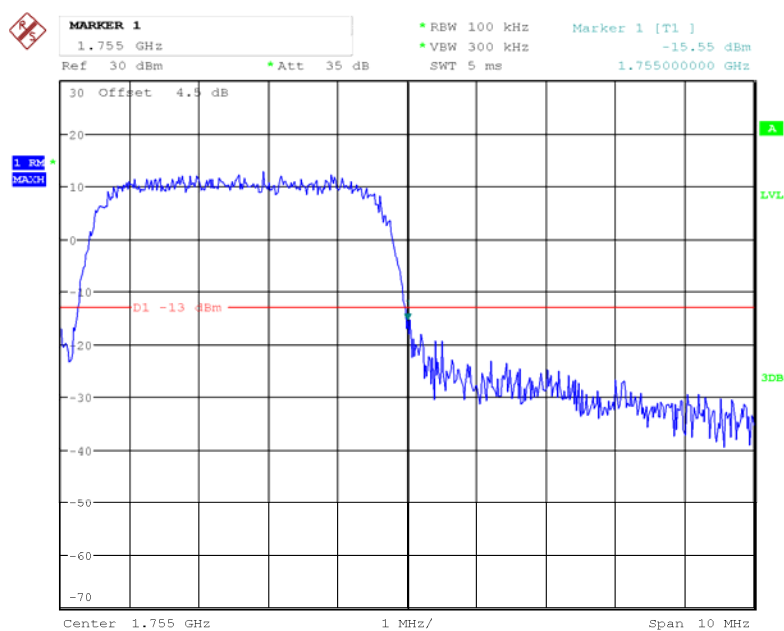
Date: 7.JUN.2020 15:59:39

WCDMA Band 4 HSDPA, Left Band Edge



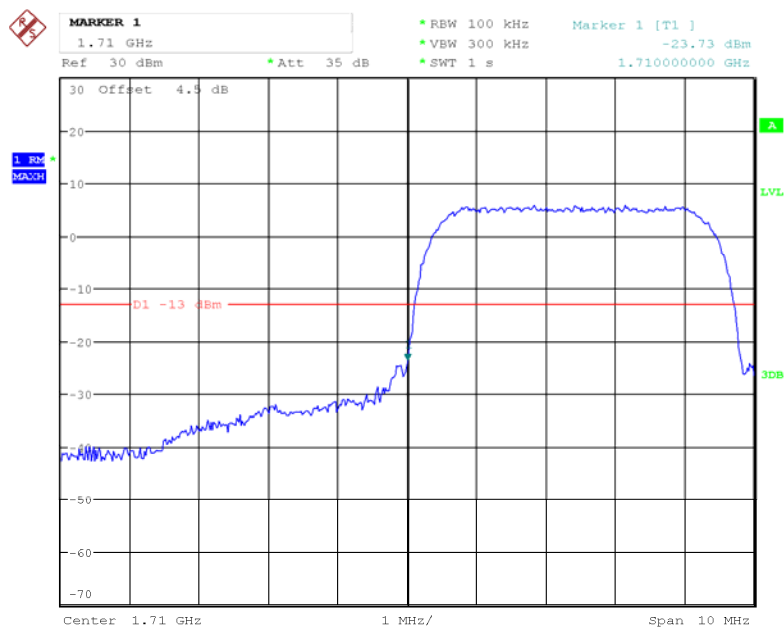
Date: 7.JUN.2020 16:10:46

WCDMA Band 4 HSDPA, Right Band Edge



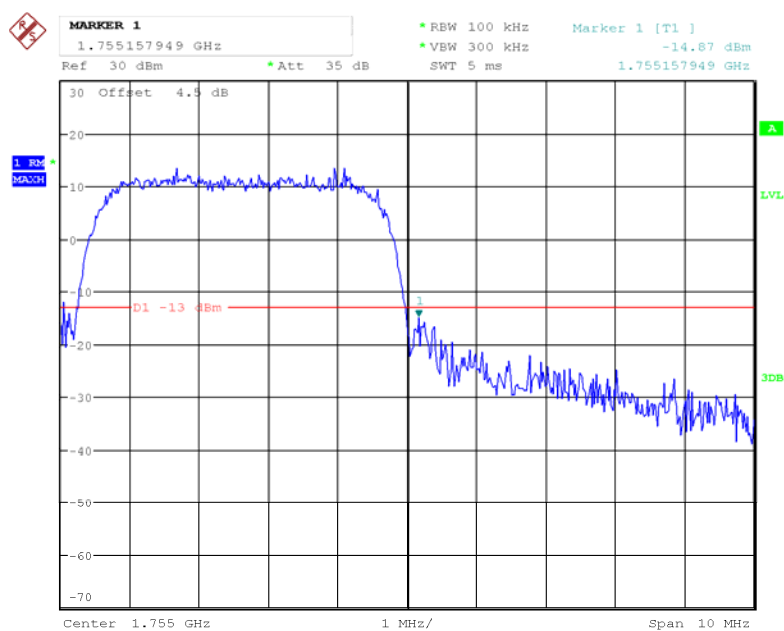
Date: 7.JUN.2020 16:11:40

WCDMA Band 4 HSUPA, Left Band Edge



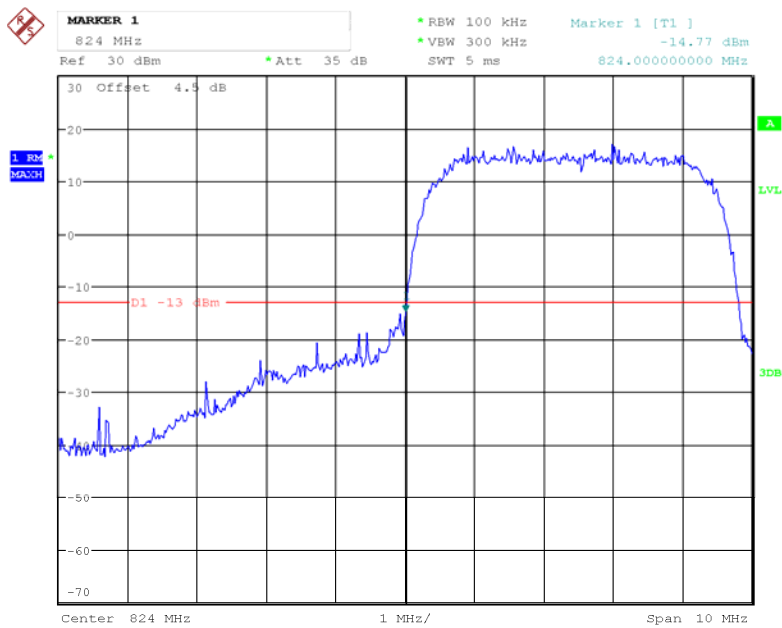
Date: 7.JUN.2020 16:22:35

WCDMA Band 4 HSUPA, Right Band Edge



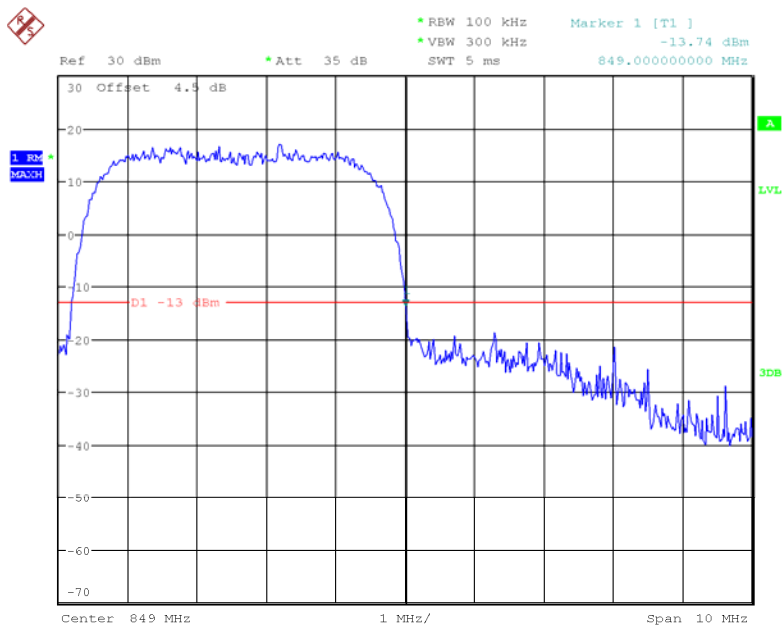
Date: 7.JUN.2020 16:23:37

WCDMA Band 5 Rel 99, Left Band Edge



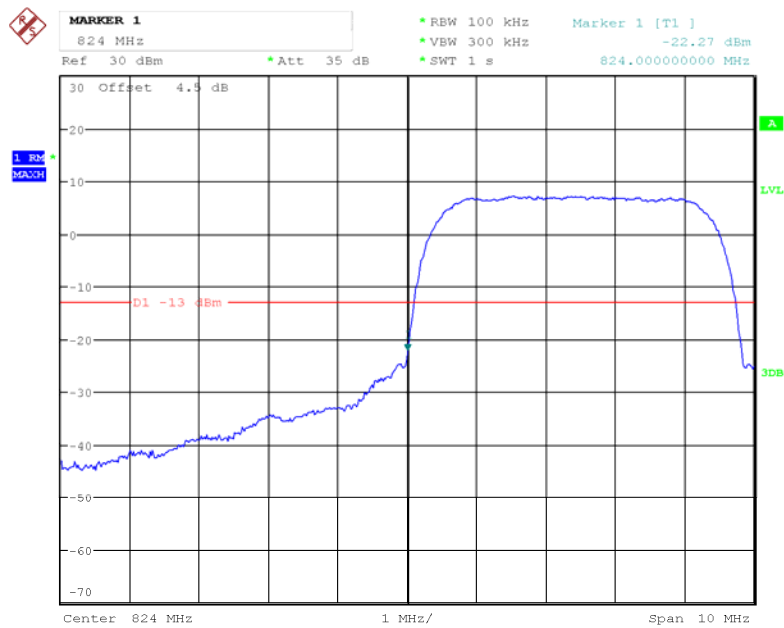
Date: 7.JUN.2020 16:04:31

WCDMA Band 5 Rel 99, Right Band Edge



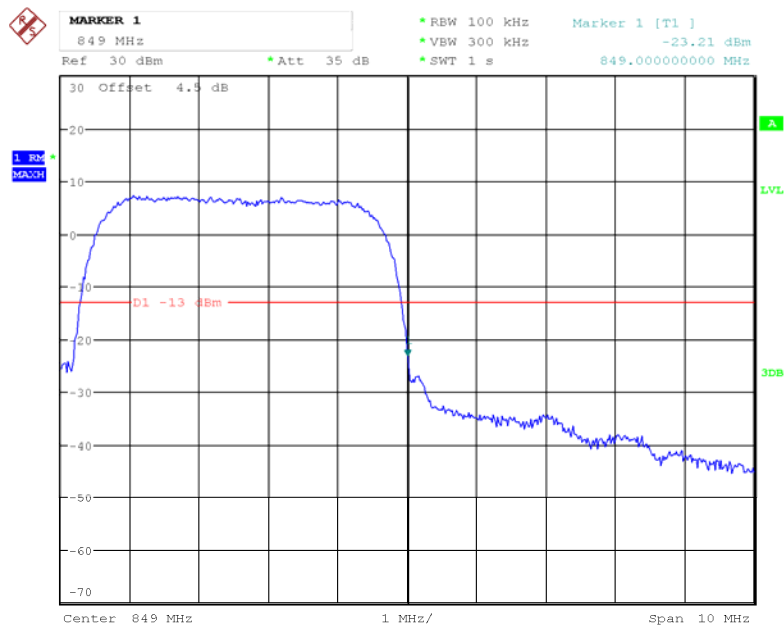
Date: 7.JUN.2020 16:06:31

WCDMA Band 5 HSDPA, Left Band Edge



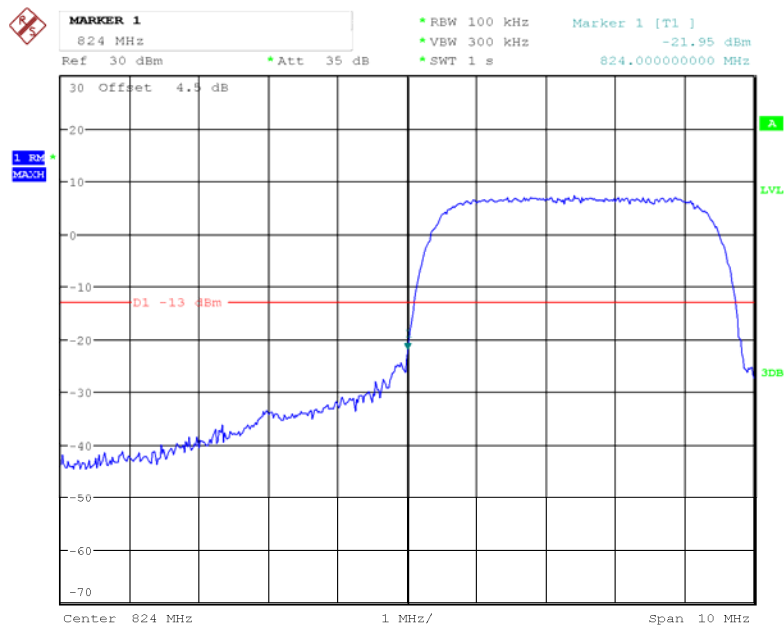
Date: 7.JUN.2020 16:14:53

WCDMA Band 5 HSDPA, Right Band Edge



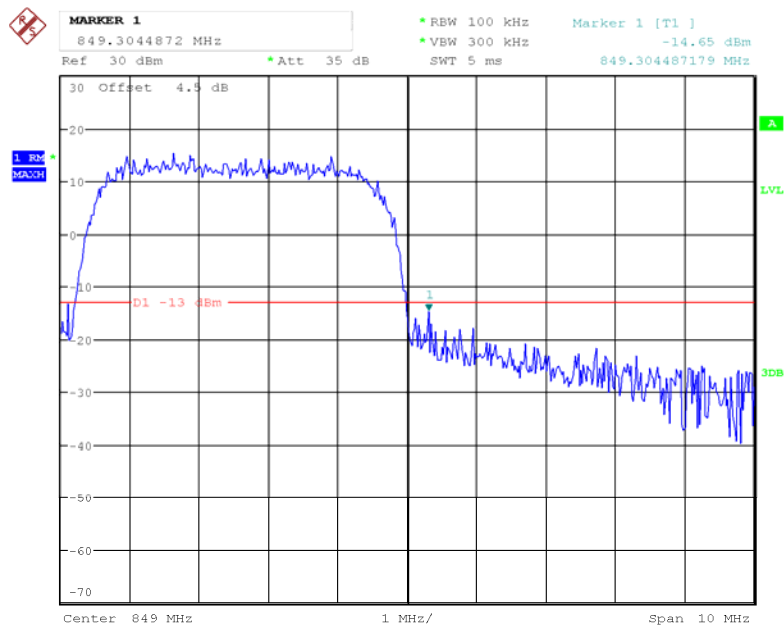
Date: 7.JUN.2020 16:16:00

WCDMA Band 5 HSUPA, Left Band Edge



Date: 7.JUN.2020 16:25:22

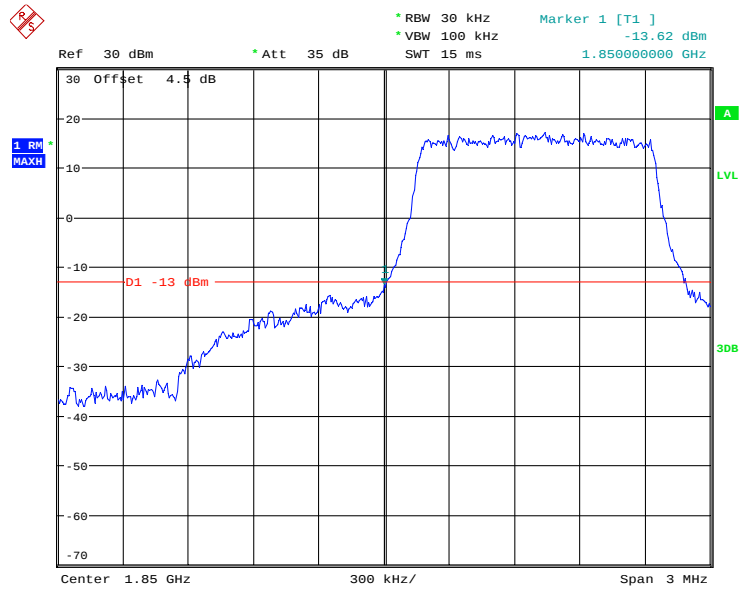
WCDMA Band 5 HSUPA, Right Band Edge



Date: 7.JUN.2020 16:26:19

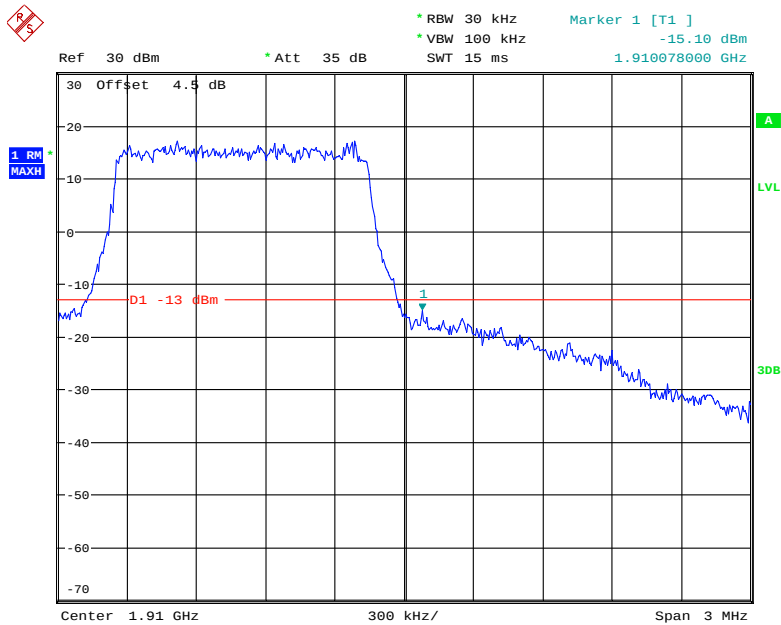
LTE Band 2

QPSK_1.4MHz_6 RB_ Left



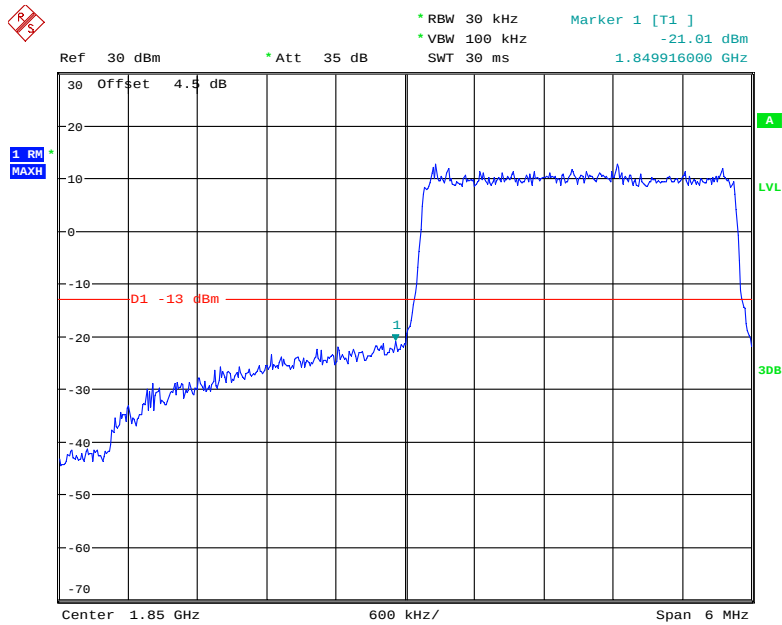
Date: 6.JUN.2020 00:46:54

QPSK_1.4MHz_6 RB_ Right



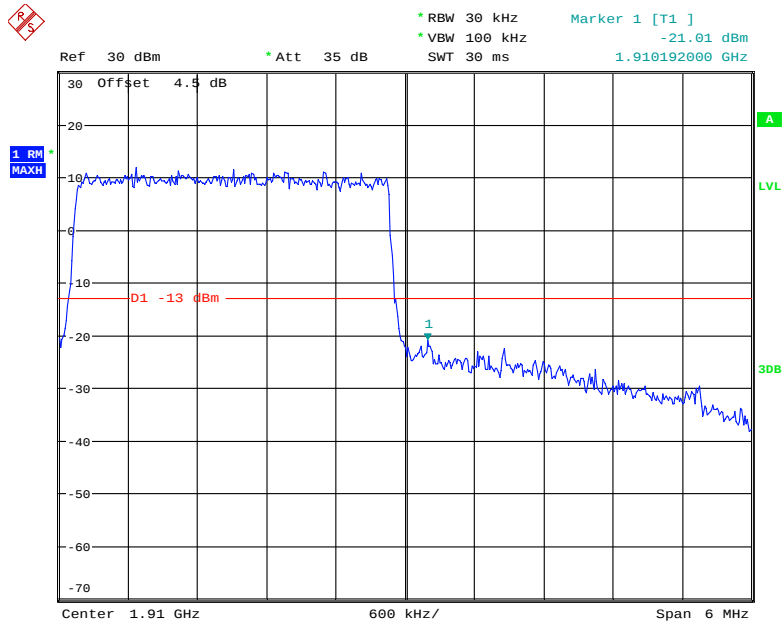
Date: 6.JUN.2020 00:47:31

QPSK_3MHz_15 RB_Left



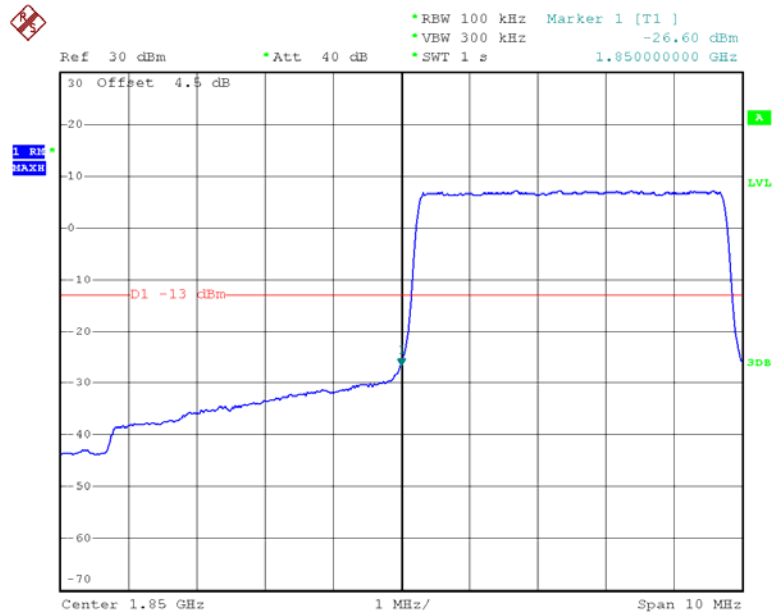
Date: 6.JUN.2020 00:48:15

QPSK_3MHz_15 RB_Right



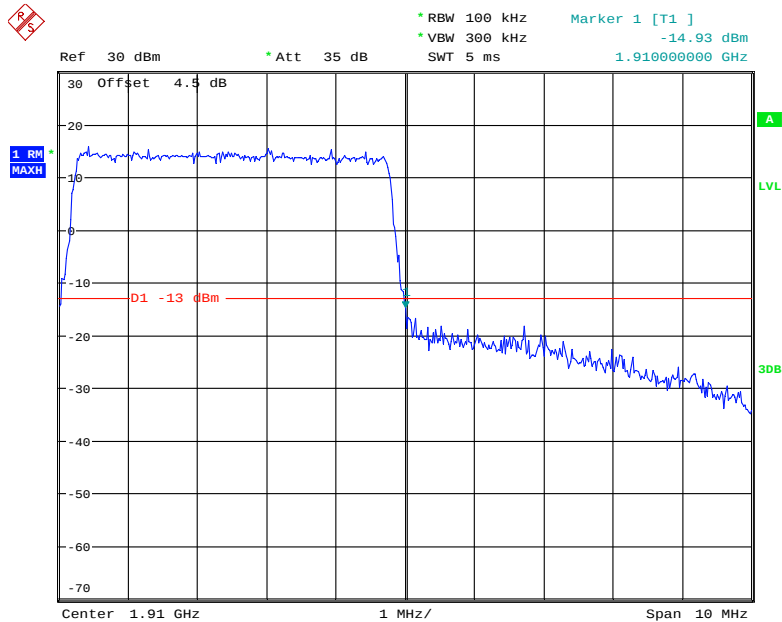
Date: 6.JUN.2020 00:48:49

QPSK_5MHz_25 RB_Left



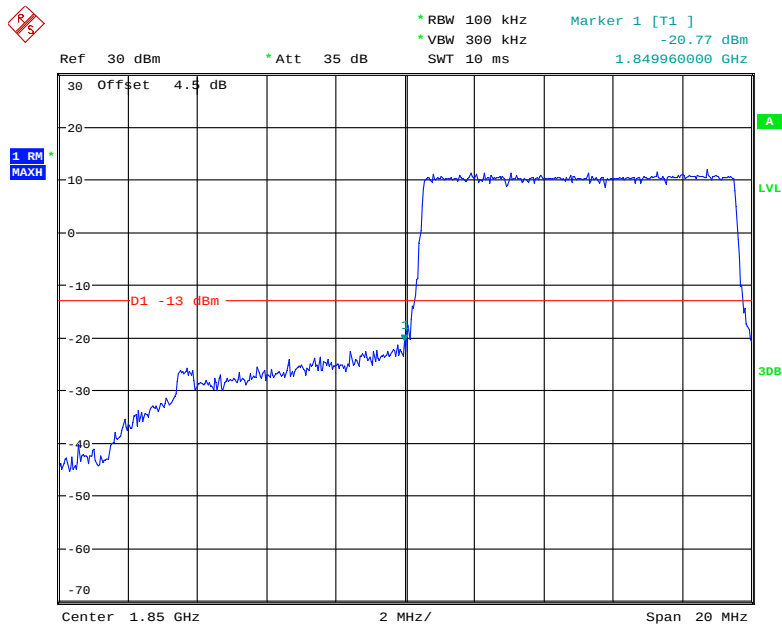
Date: 12.JUN.2020 00:28:03

QPSK_5MHz_25 RB_Right



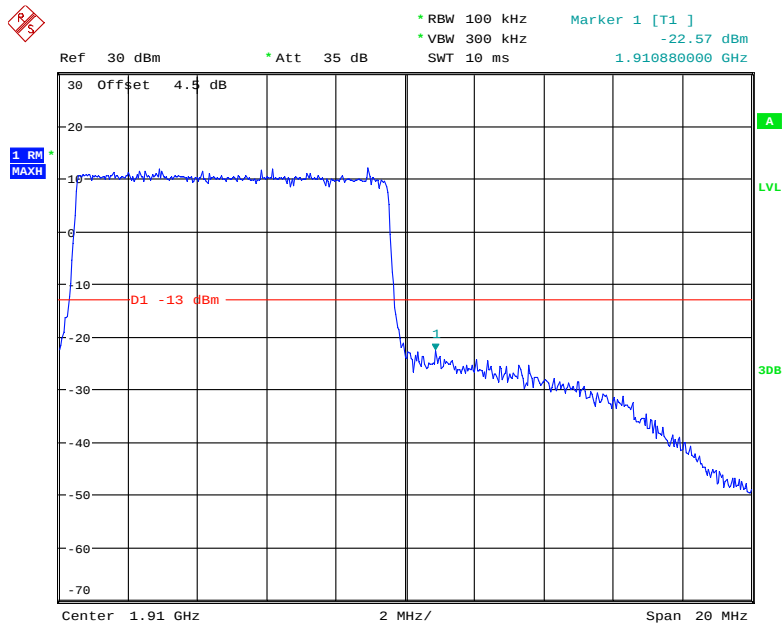
Date: 6.JUN.2020 00:50:00

QPSK_10MHz_50 RB_ Left

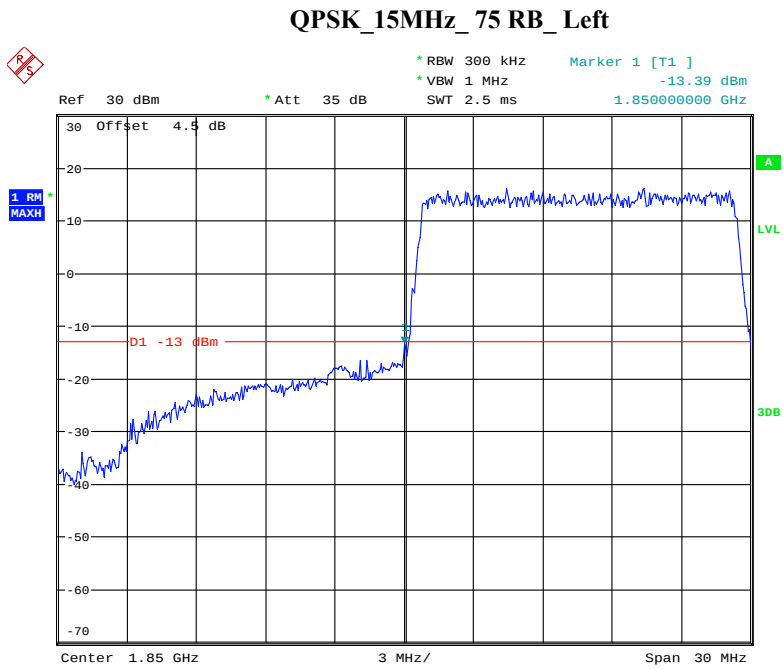


Date: 6.JUN.2020 00:50:38

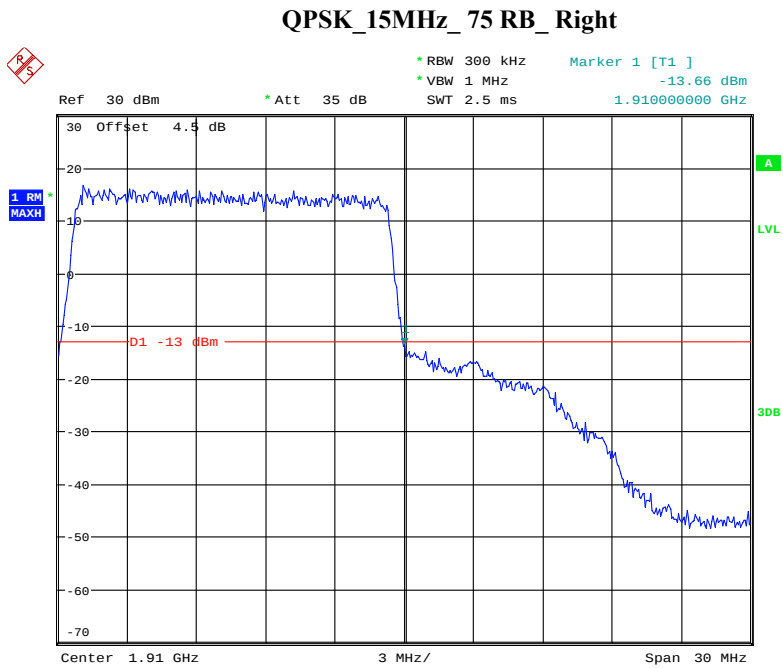
QPSK_10MHz_50 RB_ Right



Date: 6.JUN.2020 00:51:14

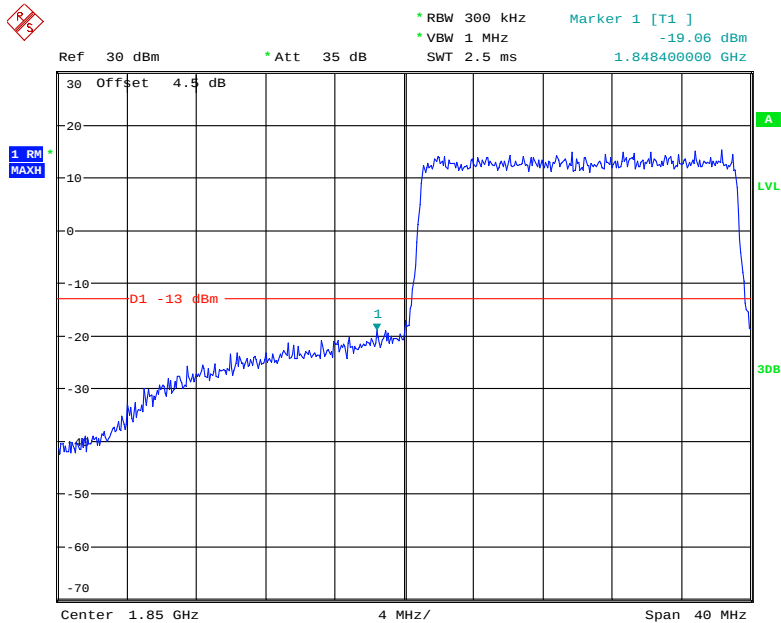


Date: 6.JUN.2020 00:51:56



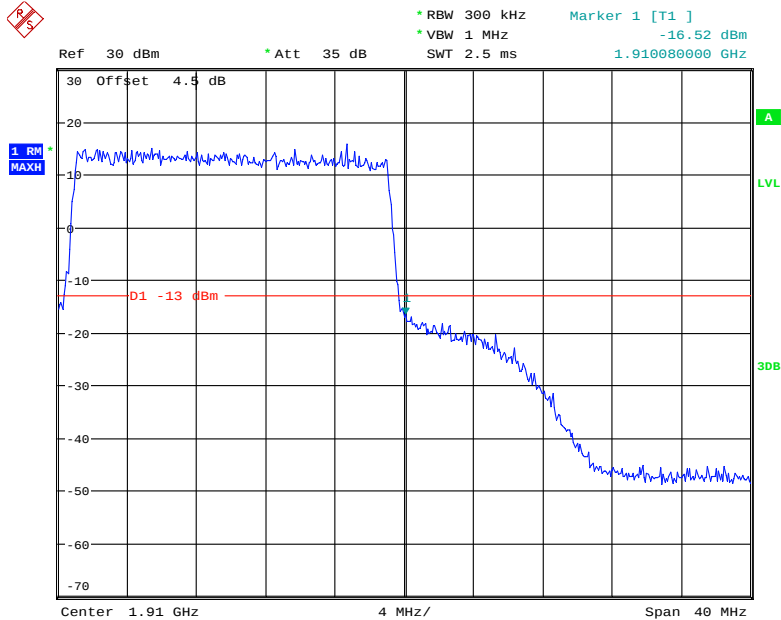
Date: 6.JUN.2020 00:52:37

QPSK_20MHz_FULL RB_Left

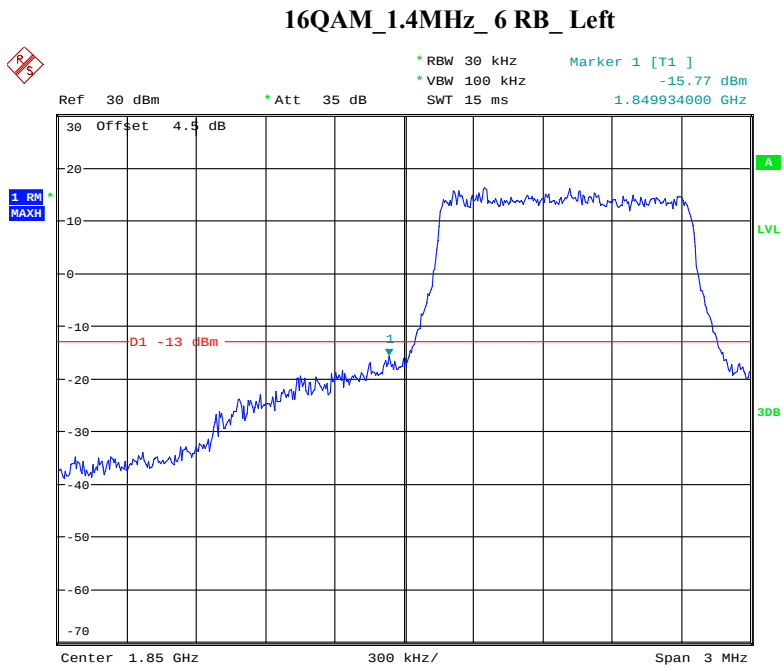


Date: 6.JUN.2020 00:53:21

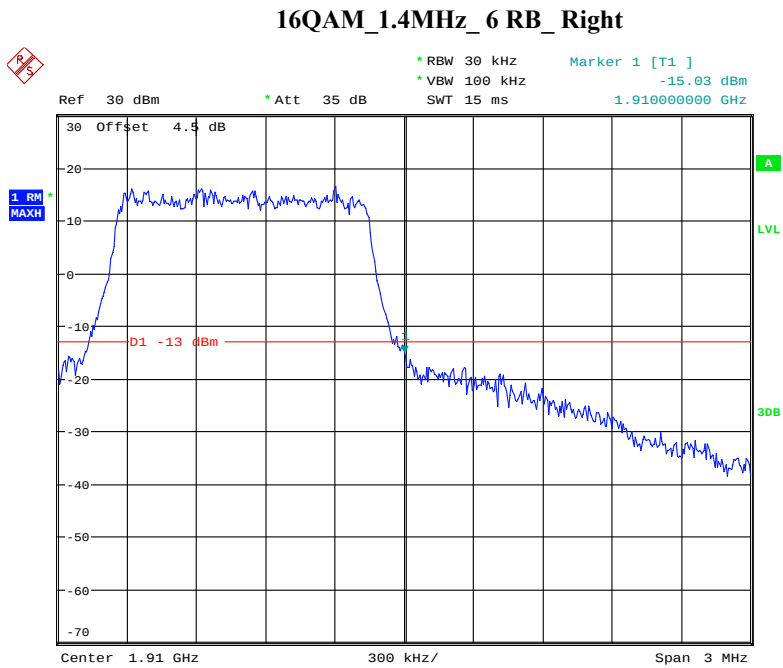
QPSK_20MHz_FULL RB_Right



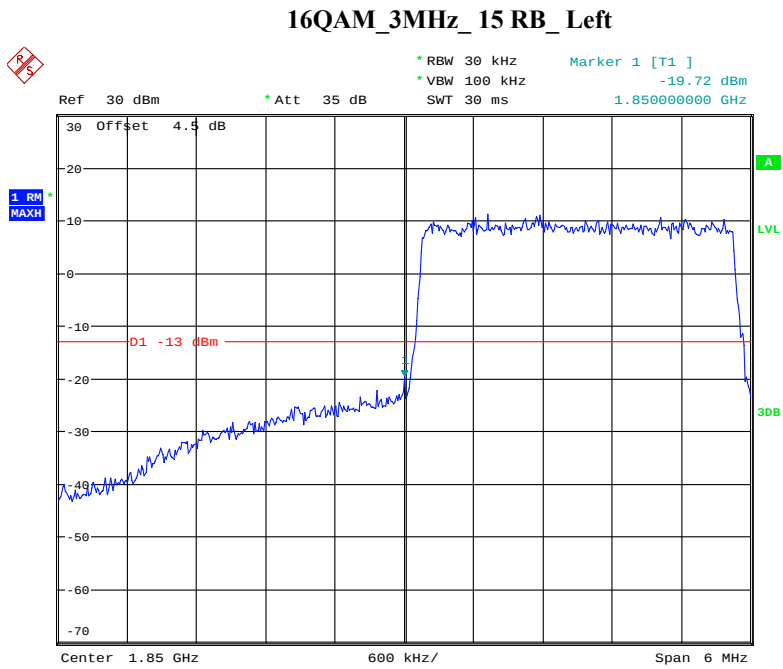
Date: 6.JUN.2020 00:54:05



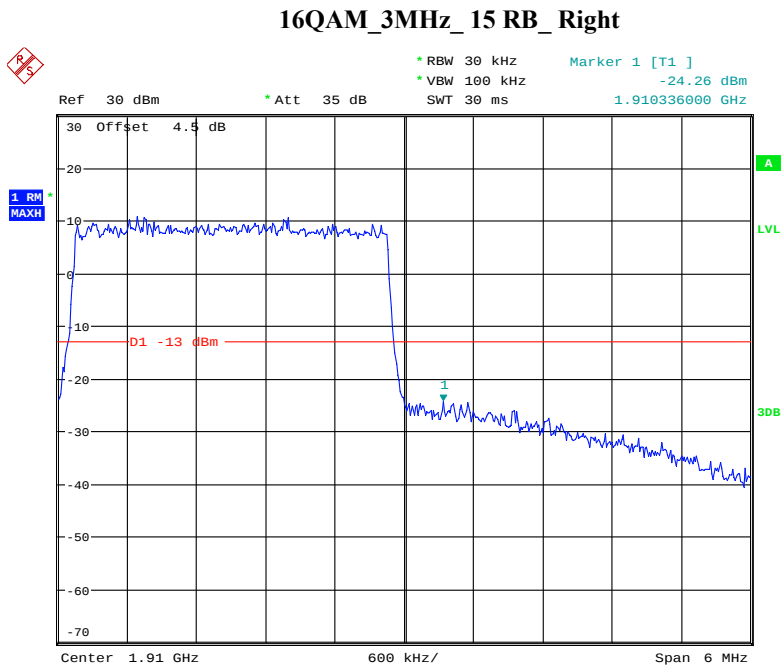
Date: 6.JUN.2020 00:47:11



Date: 6.JUN.2020 00:47:51

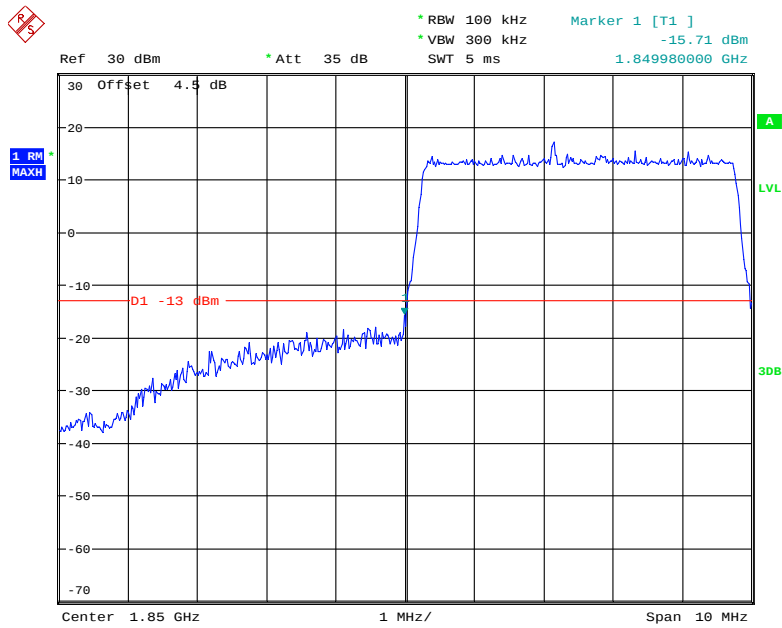


Date: 6.JUN.2020 00:48:31



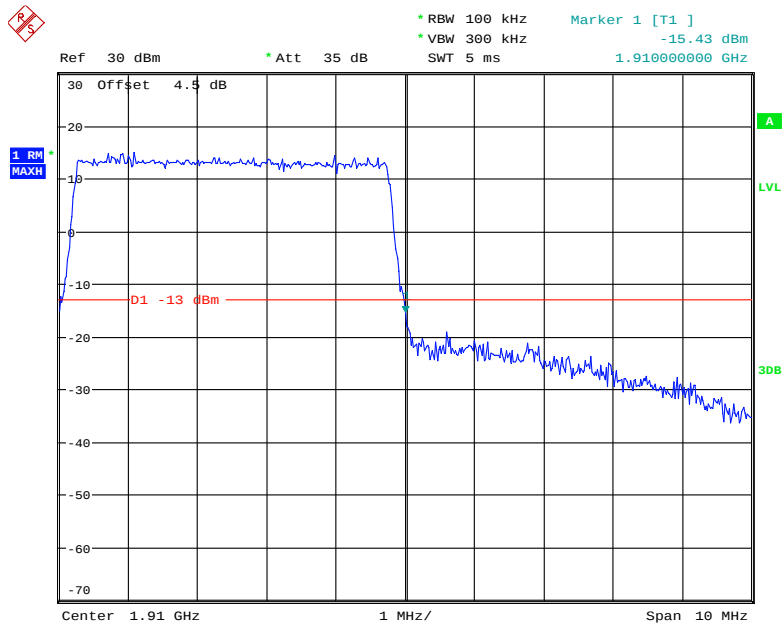
Date: 6.JUN.2020 00:49:06

16QAM_5MHz_25 RB_ Left

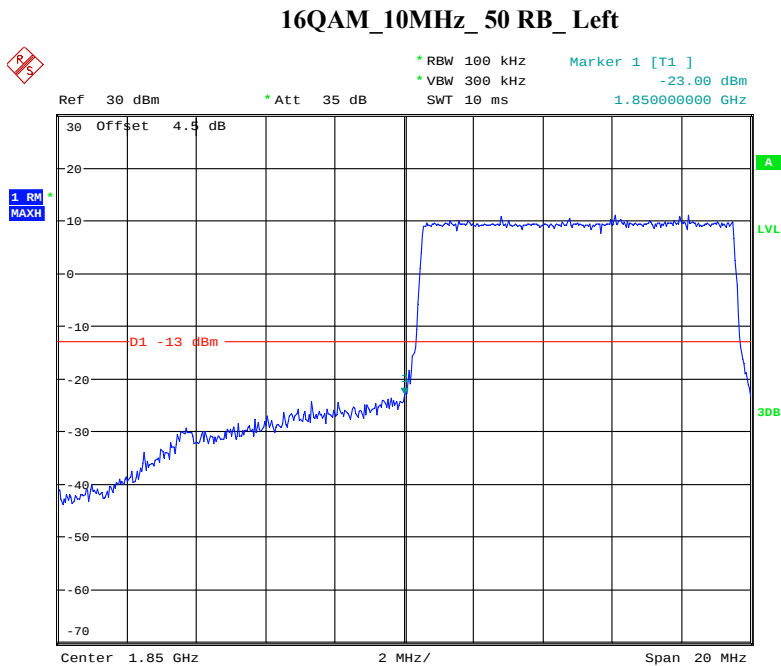


Date: 6.JUN.2020 00:49:42

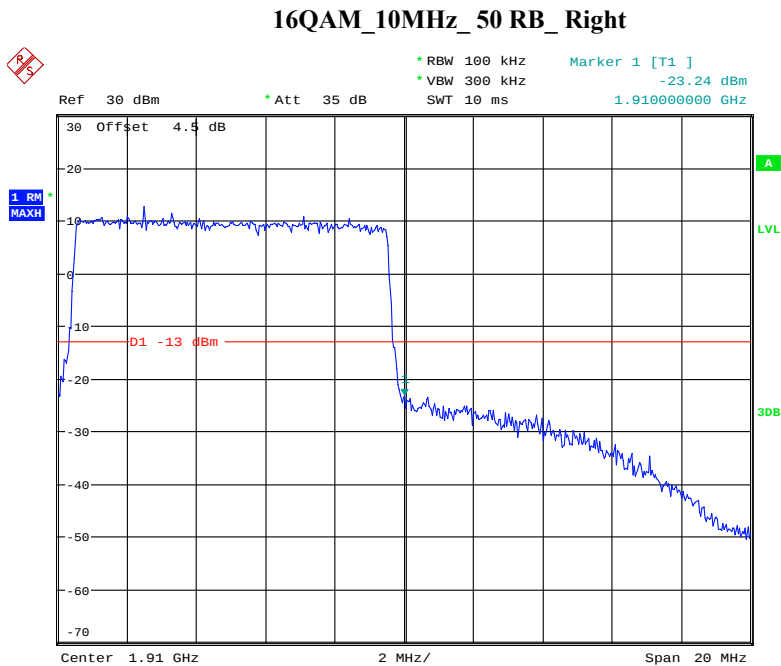
16QAM_5MHz_25 RB_ Right



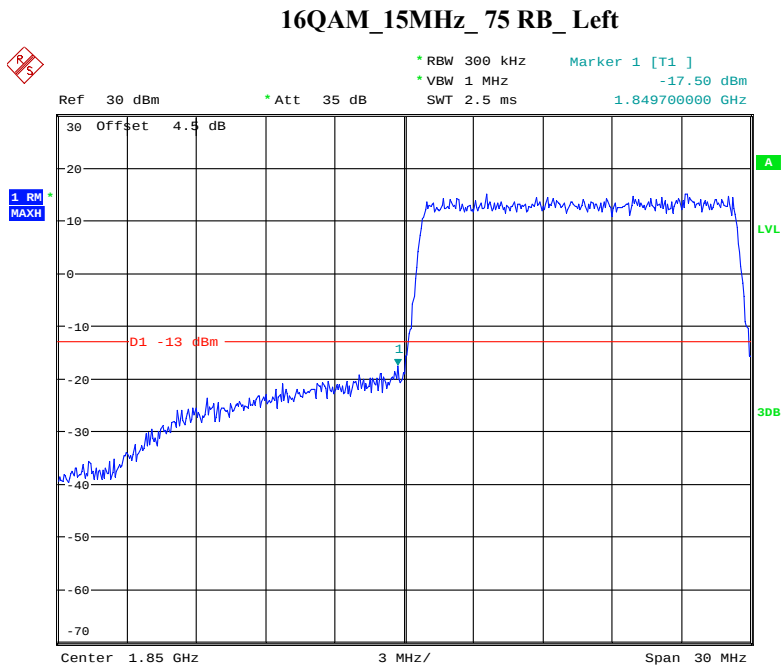
Date: 6.JUN.2020 00:50:17



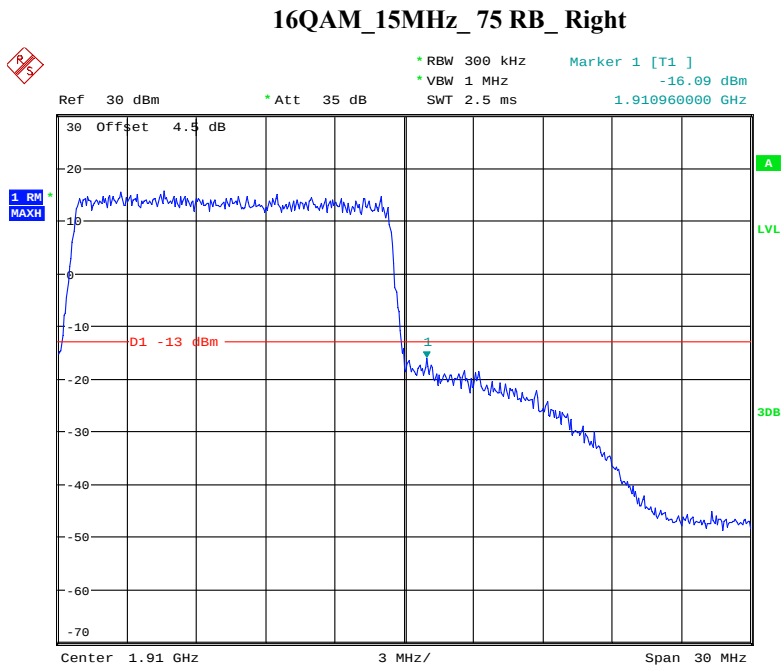
Date: 6.JUN.2020 00:50:56



Date: 6.JUN.2020 00:51:32

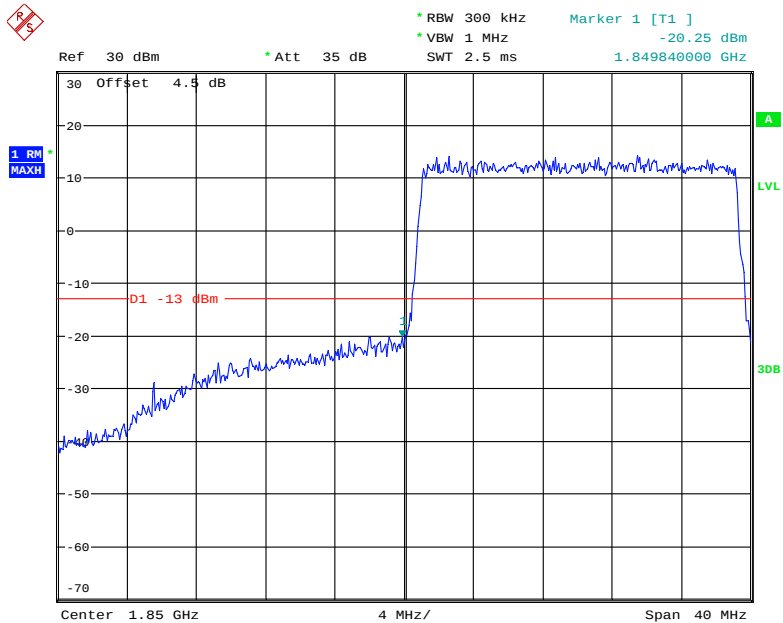


Date: 6.JUN.2020 00:52:16



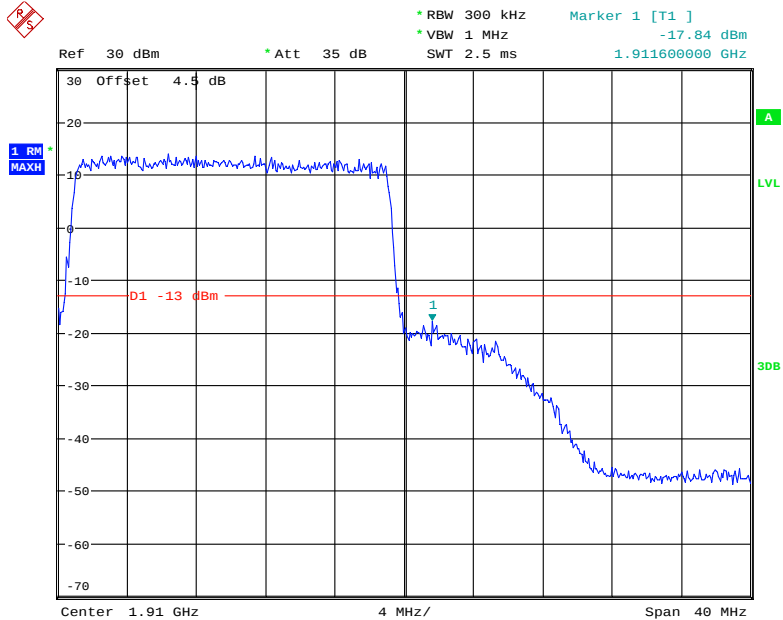
Date: 6.JUN.2020 00:52:57

16QAM_20MHz_FULL RB_Left



Date: 6.JUN.2020 00:53:44

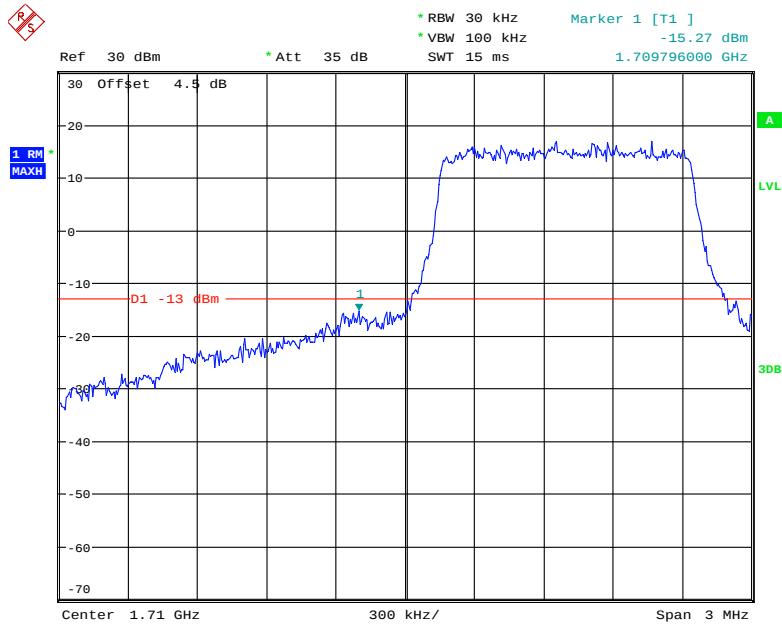
16QAM_20MHz_FULL RB_Right



Date: 6.JUN.2020 00:54:25

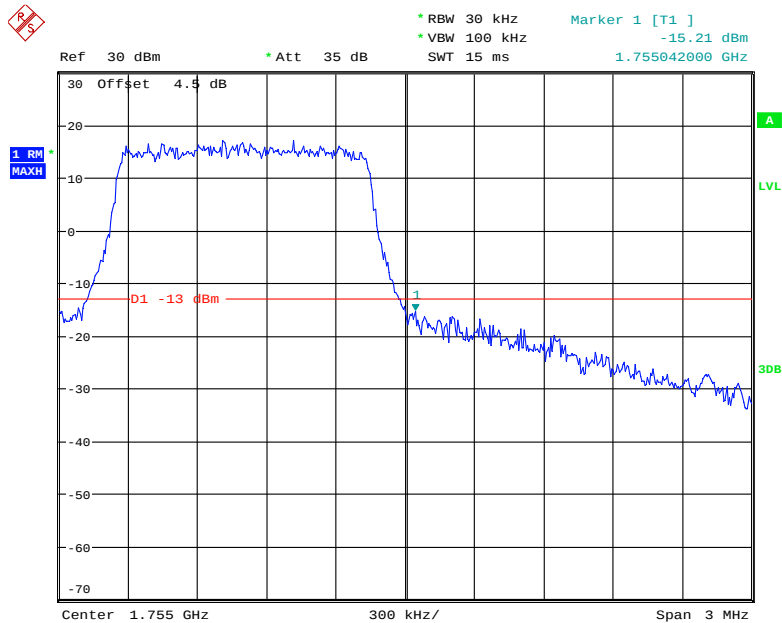
LTE Band 4

QPSK_1.4MHz_6 RB_ Left



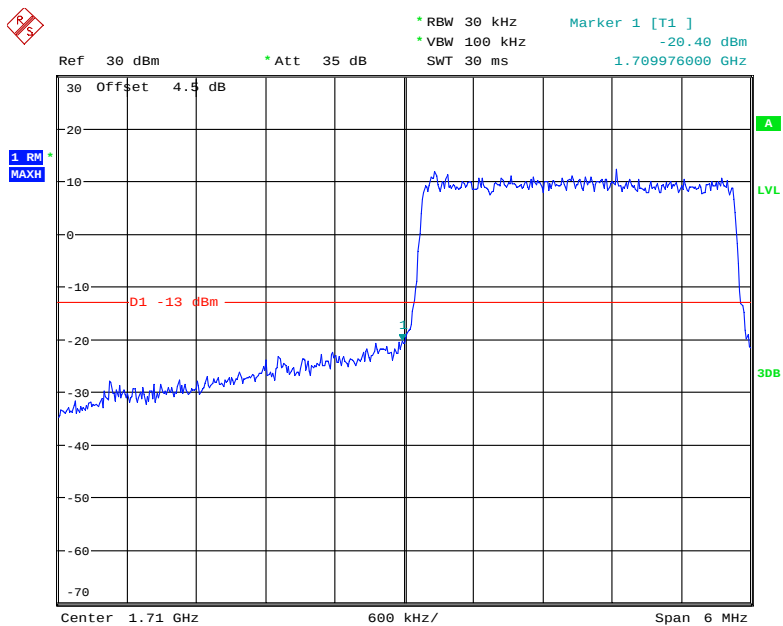
Date: 6.JUN.2020 00:54:49

QPSK_1.4MHz_6 RB_ Right



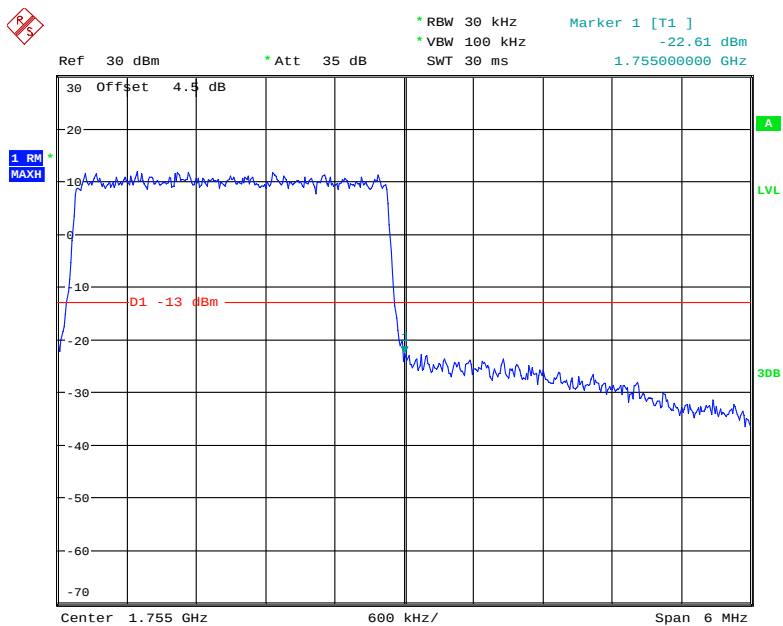
Date: 6.JUN.2020 00:55:27

QPSK_3MHz_15 RB_Left



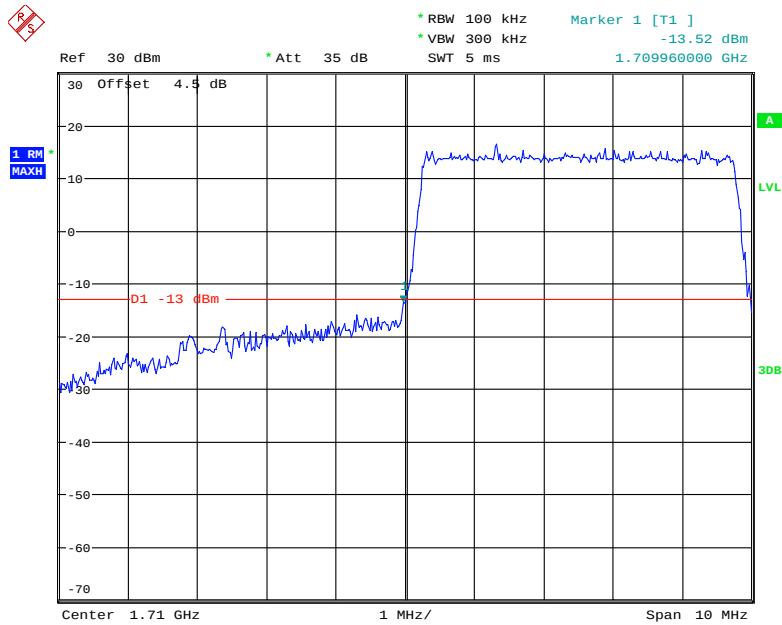
Date: 6.JUN.2020 00:56:07

QPSK_3MHz_15 RB_Right



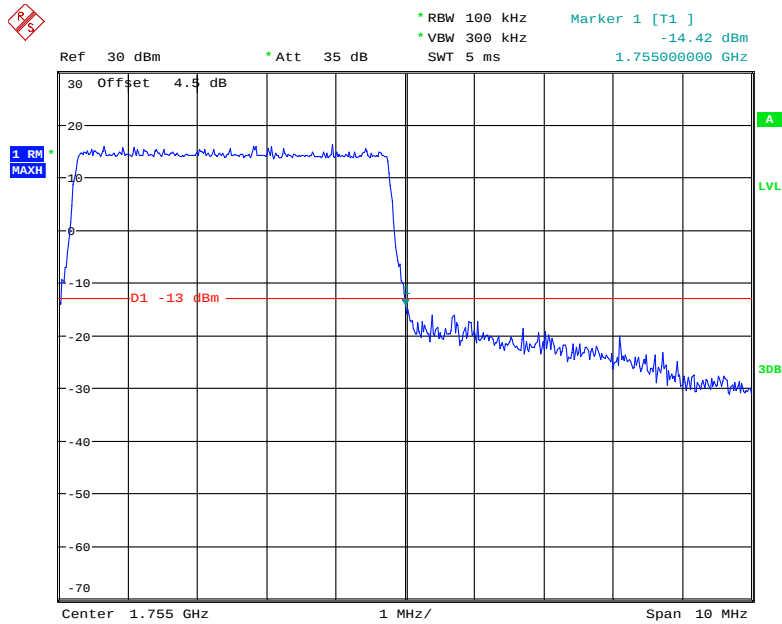
Date: 6.JUN.2020 00:56:41

QPSK_5MHz_25 RB_ Left



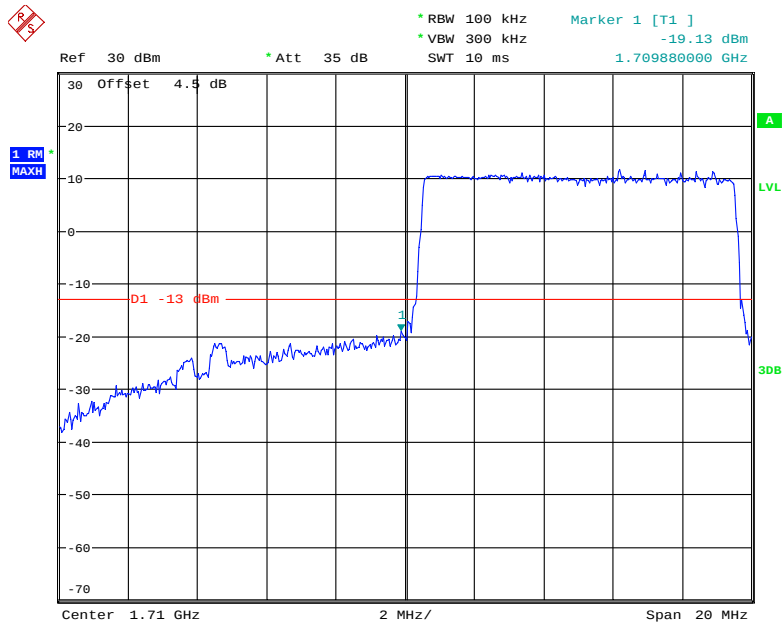
Date: 6.JUN.2020 00:57:18

QPSK_5MHz_25 RB_ Right



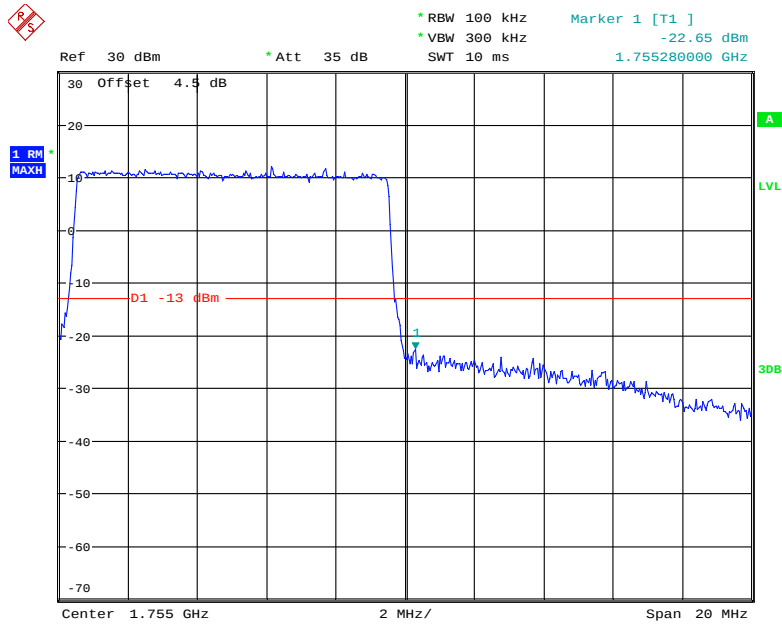
Date: 6.JUN.2020 00:57:55

QPSK_10MHz_50 RB_ Left

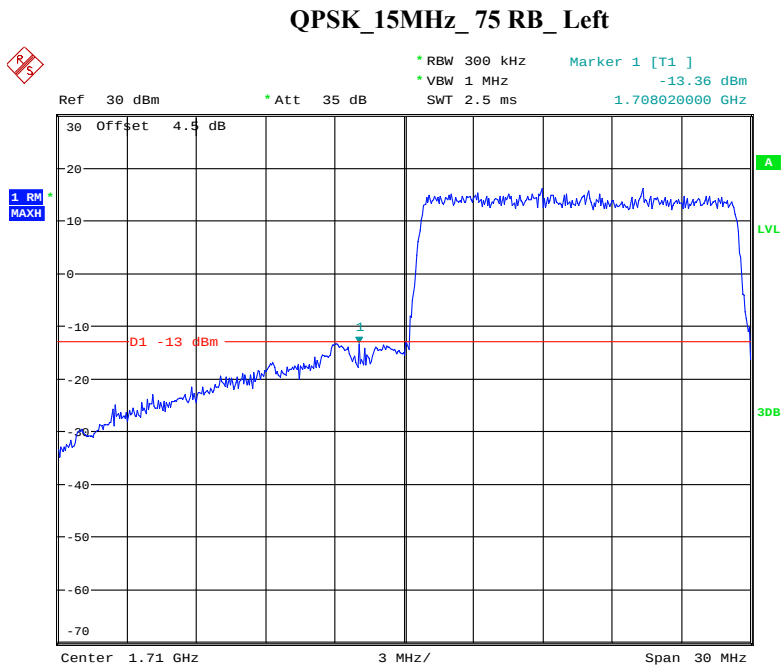


Date: 6.JUN.2020 00:58:33

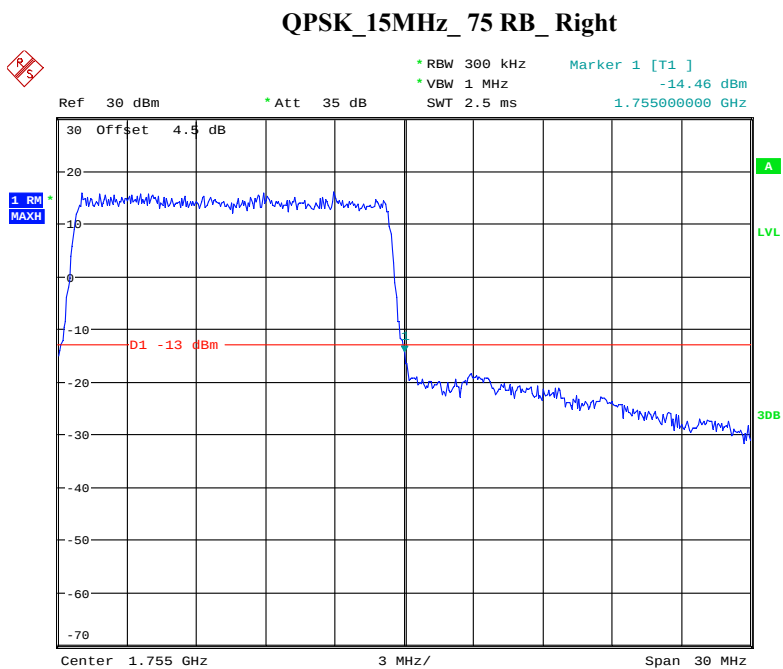
QPSK_10MHz_50 RB_ Right



Date: 6.JUN.2020 00:59:16

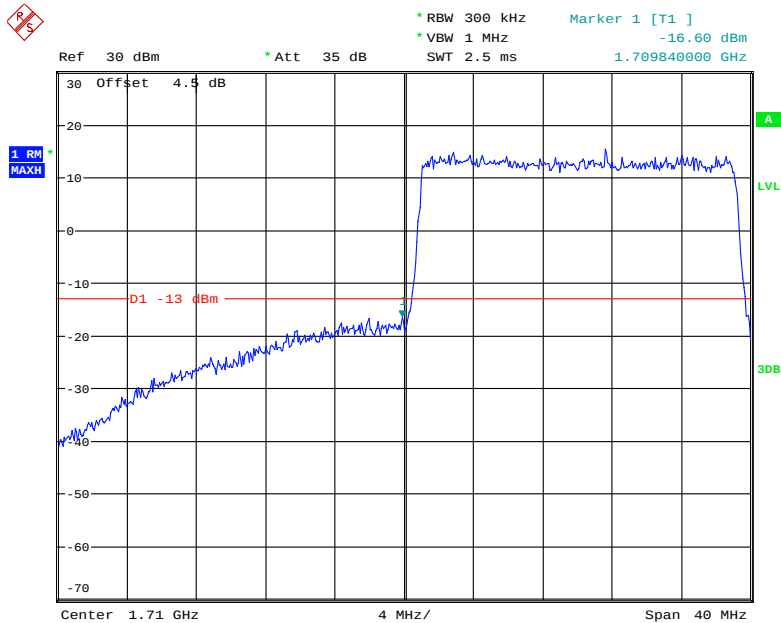


Date: 6.JUN.2020 00:59:57



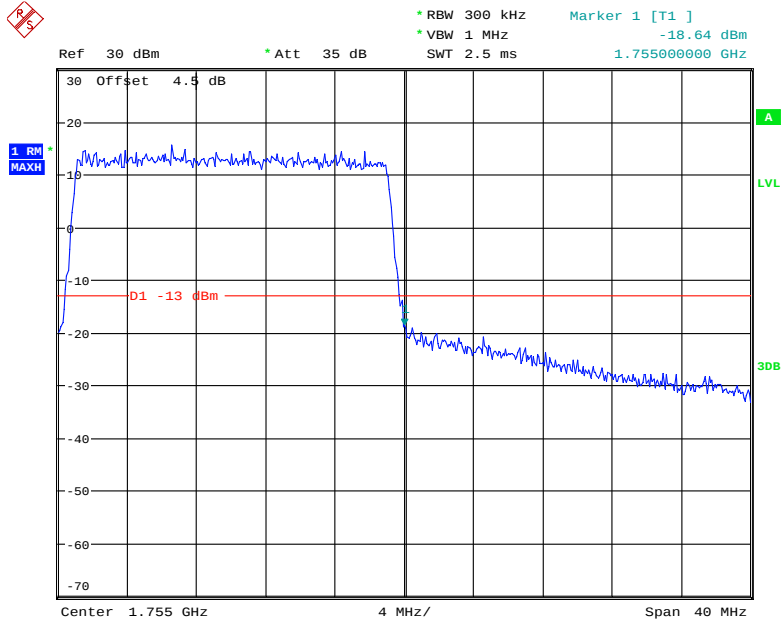
Date: 6.JUN.2020 01:00:39

QPSK_20MHz_FULL RB_Left

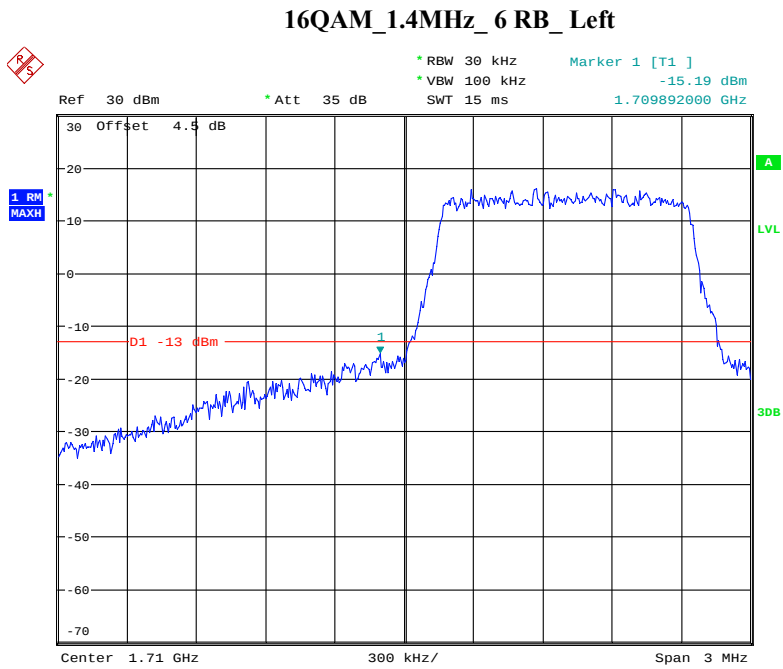


Date: 6.JUN.2020 01:01:26

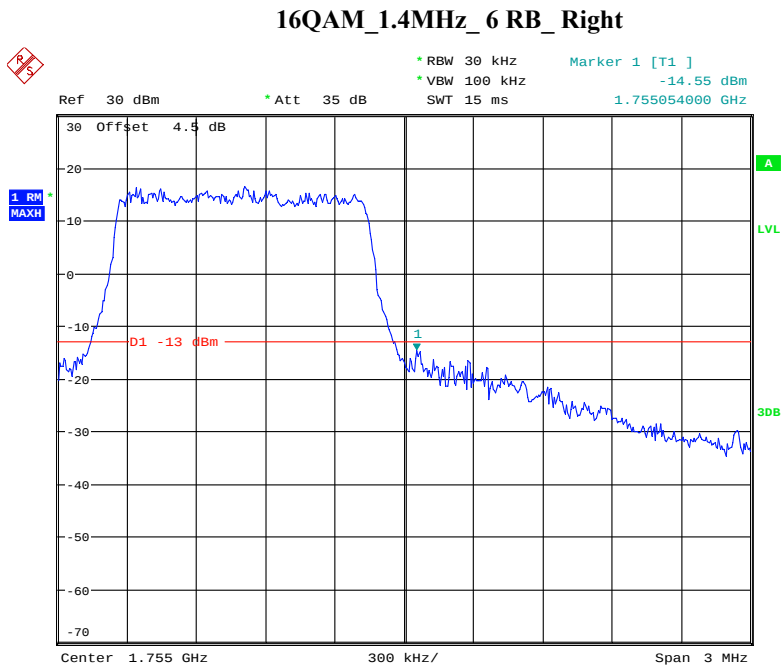
QPSK_20MHz_FULL RB_Right



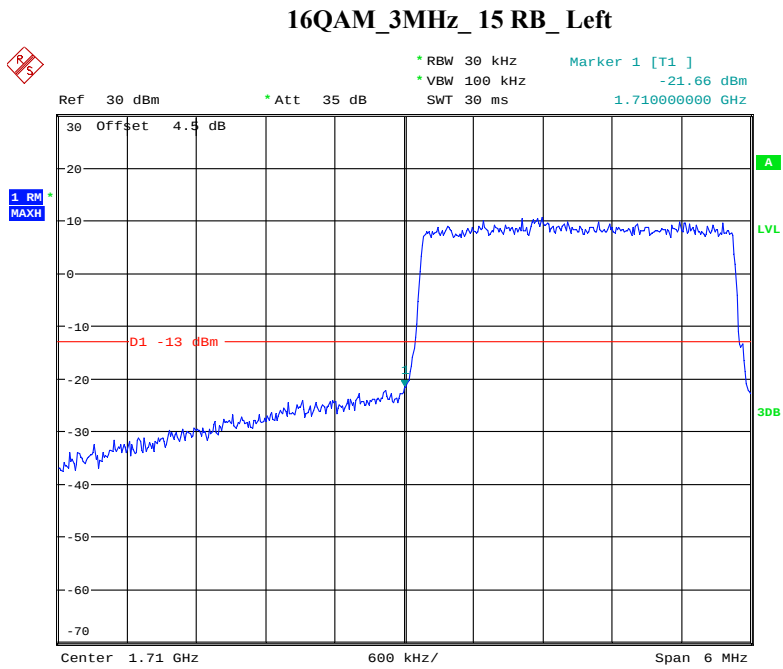
Date: 6.JUN.2020 01:02:10



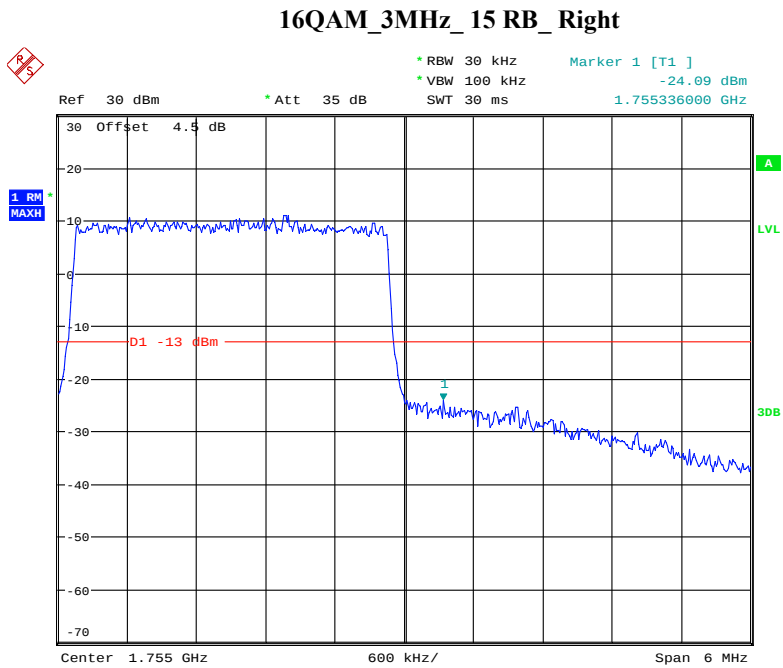
Date: 6.JUN.2020 00:55:09



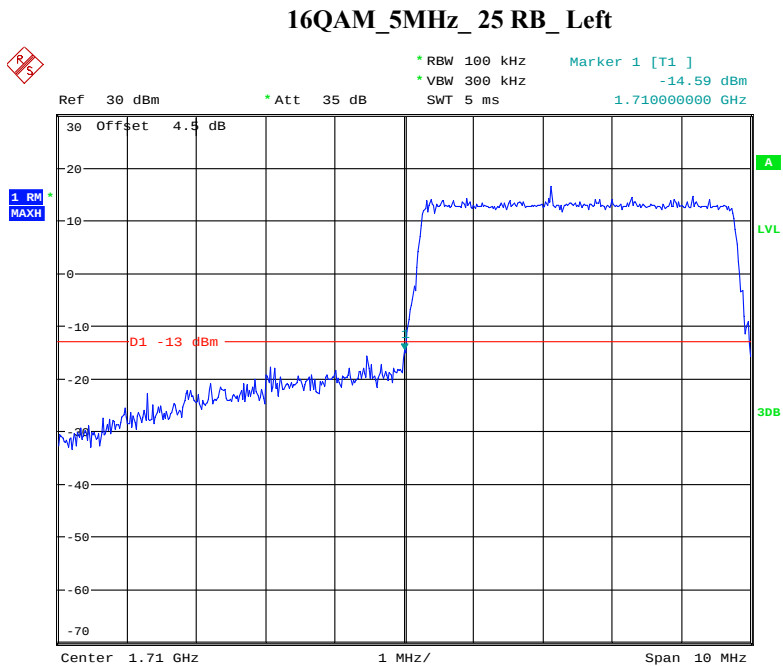
Date: 6.JUN.2020 00:55:47



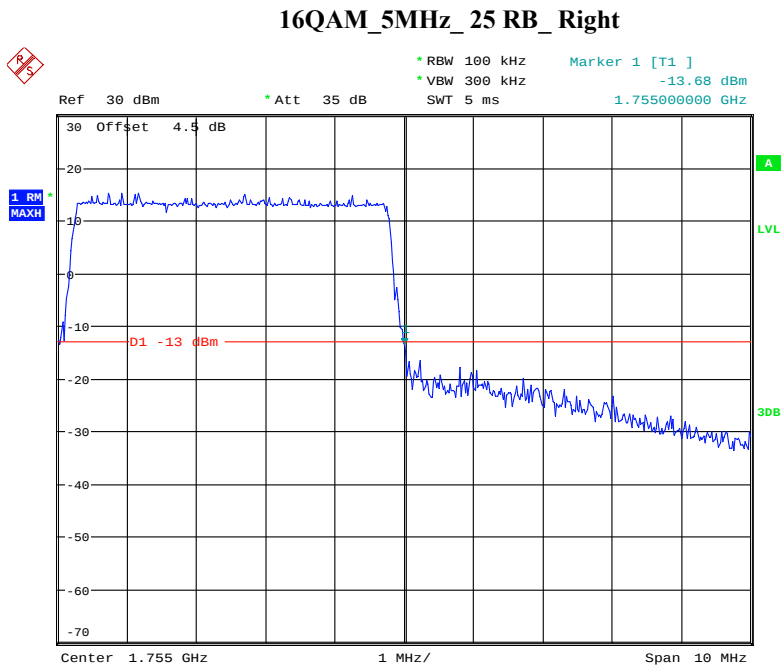
Date: 6.JUN.2020 00:56:24



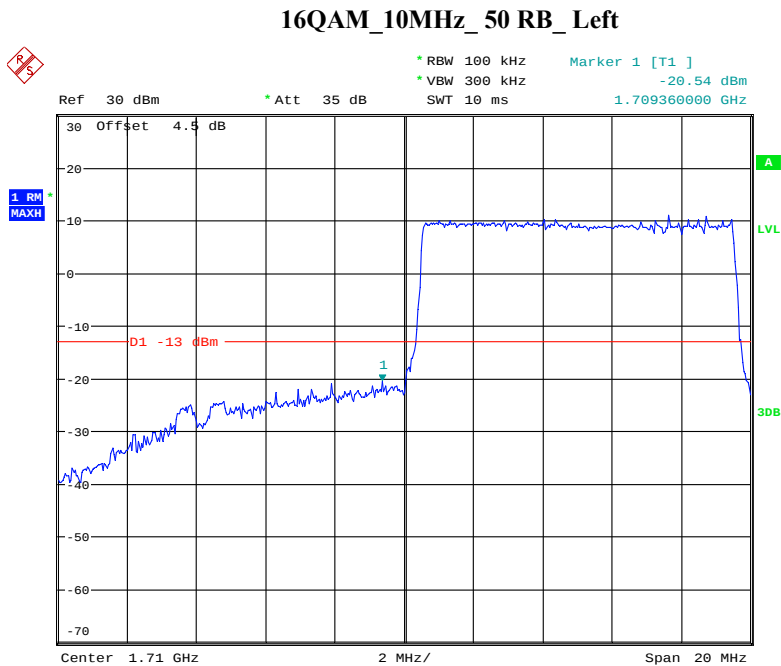
Date: 6.JUN.2020 00:56:58



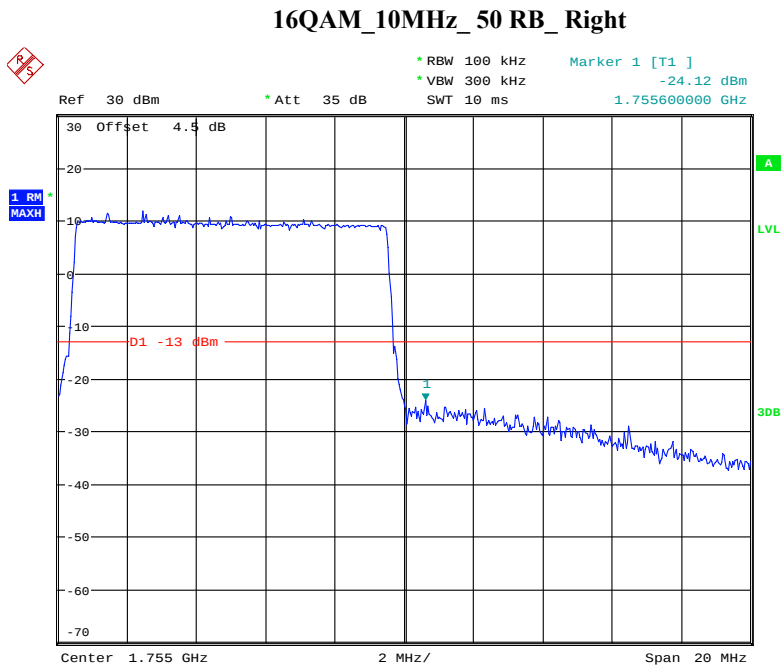
Date: 6.JUN.2020 00:57:35



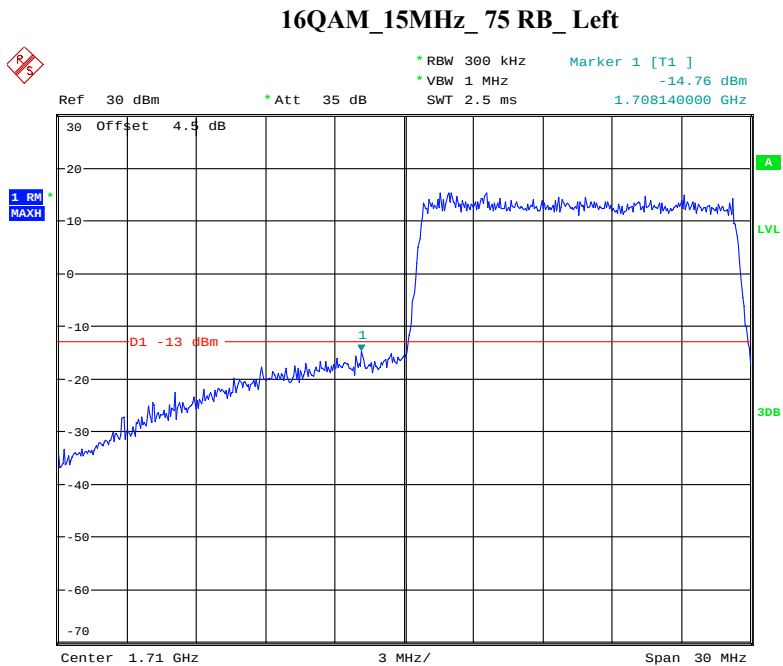
Date: 6.JUN.2020 00:58:12



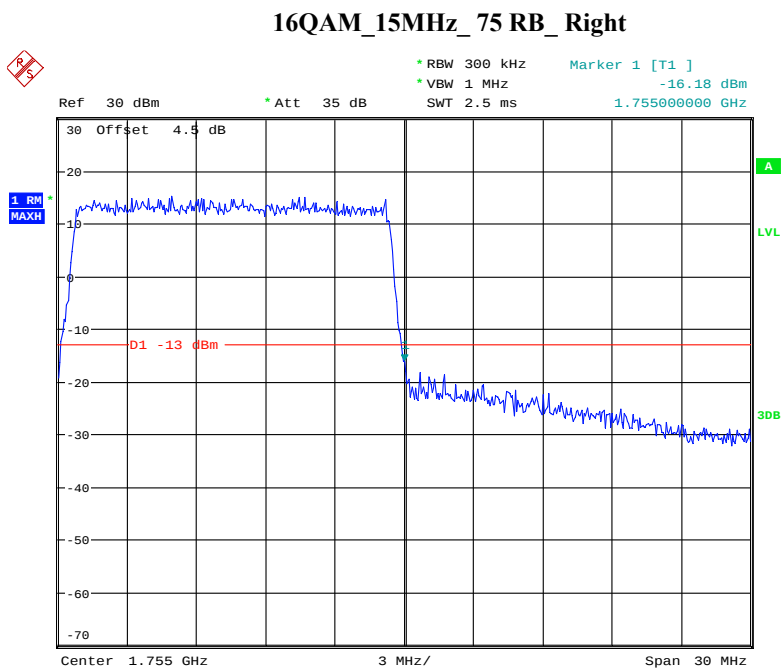
Date: 6.JUN.2020 00:58:54



Date: 6.JUN.2020 00:59:34

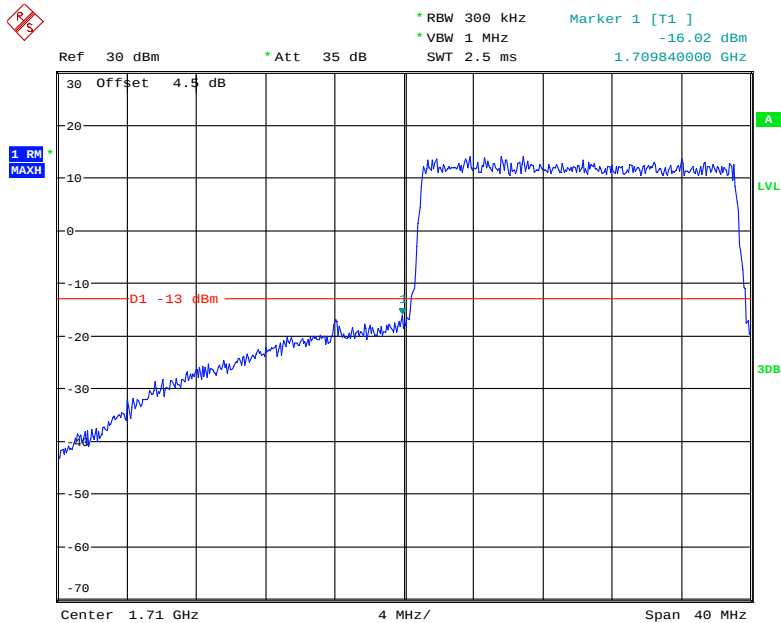


Date: 6.JUN.2020 01:00:18



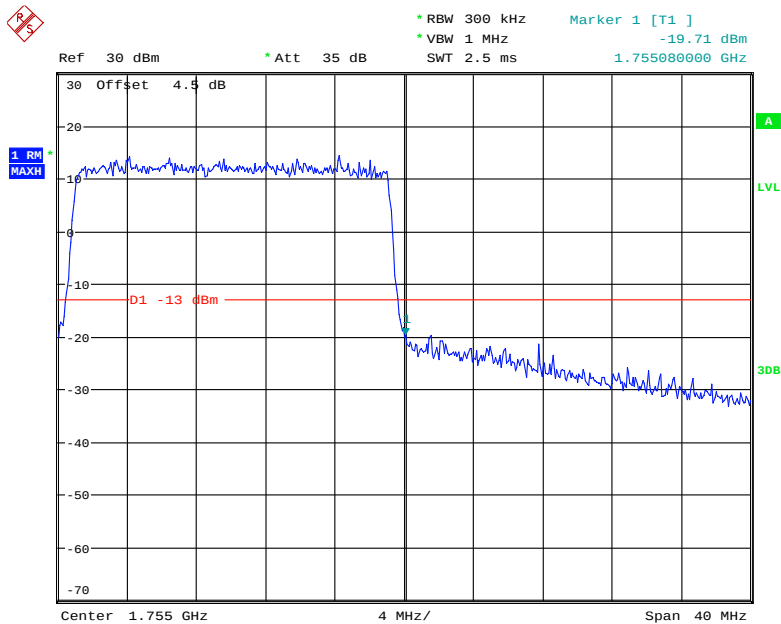
Date: 6.JUN.2020 01:00:59

16QAM_20MHz_FULL RB_Left



Date: 6.JUN.2020 01:01:49

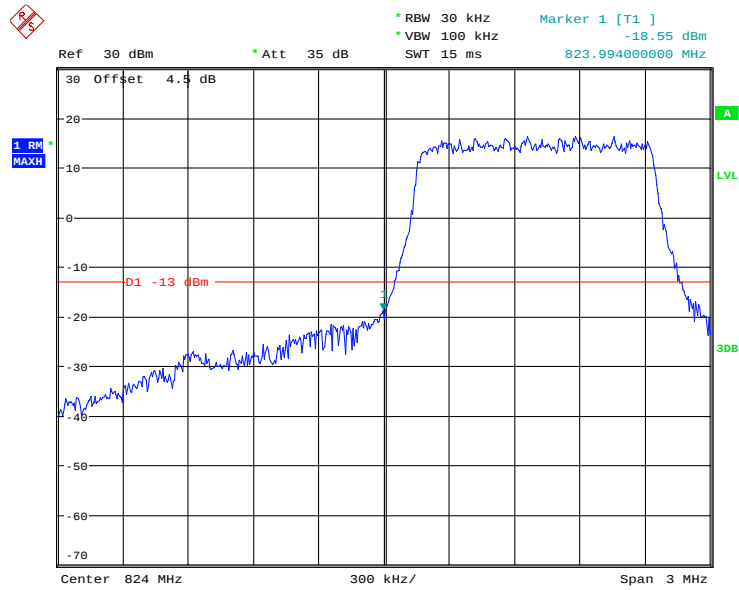
16QAM_20MHz_FULL RB_Right



Date: 6.JUN.2020 01:02:33

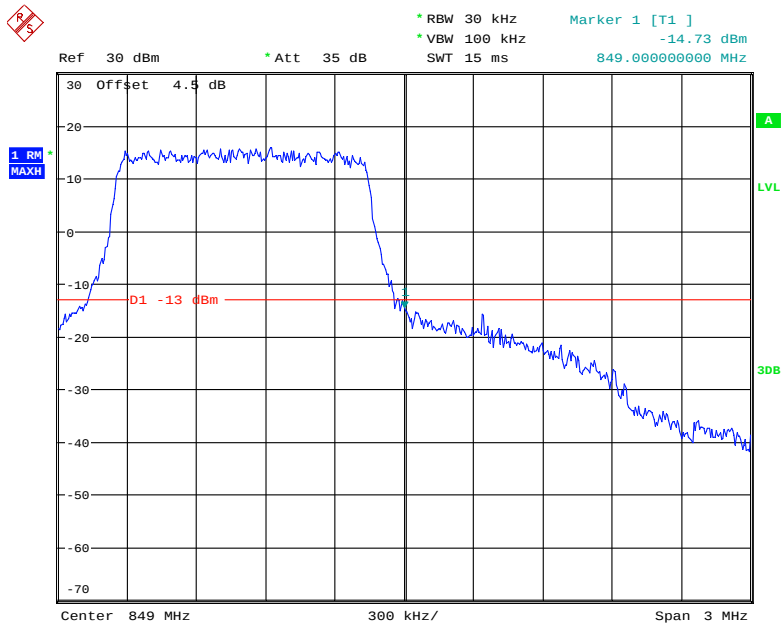
LTE Band 5

QPSK_1.4MHz_6 RB_ Left



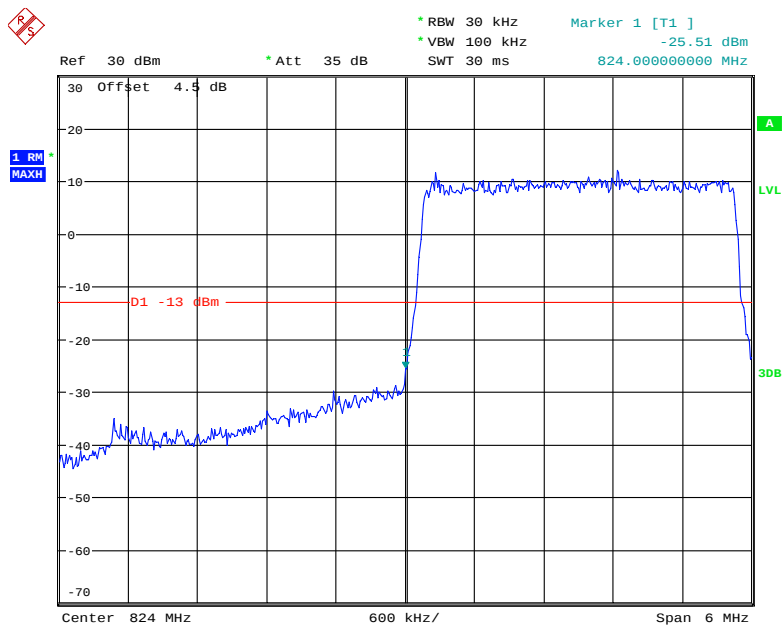
Date: 6.JUN.2020 01:02:58

QPSK_1.4MHz_6 RB_ Right



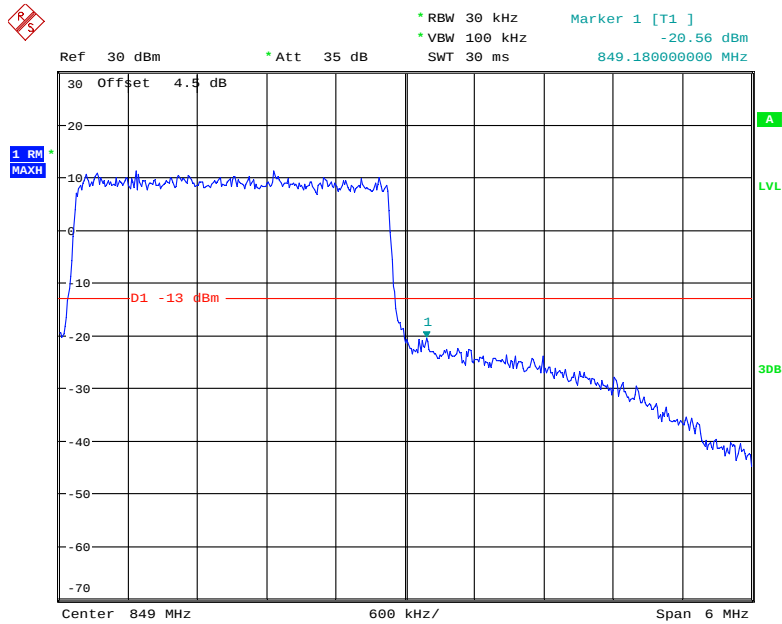
Date: 6.JUN.2020 01:03:39

QPSK_3MHz_15 RB_Left



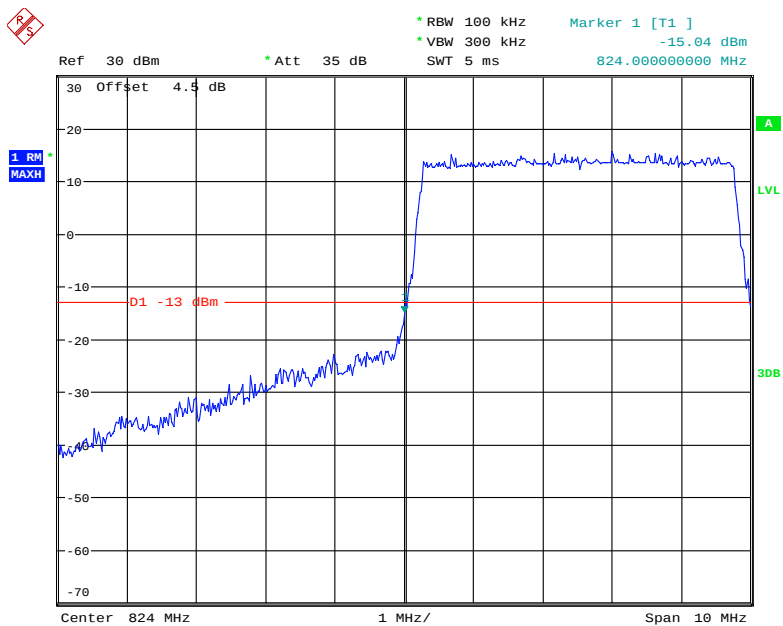
Date: 6.JUN.2020 01:04:23

QPSK_3MHz_15 RB_Right



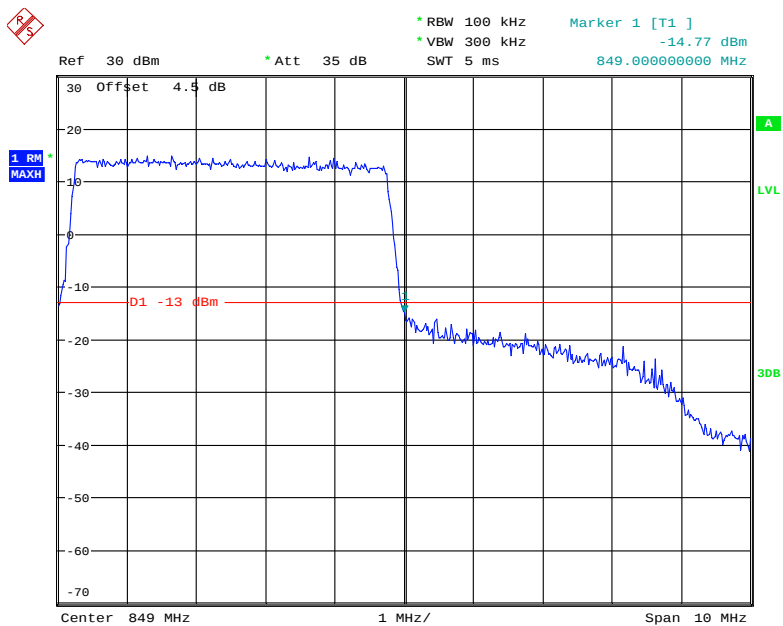
Date: 6.JUN.2020 01:05:00

QPSK_5MHz_25 RB_ Left

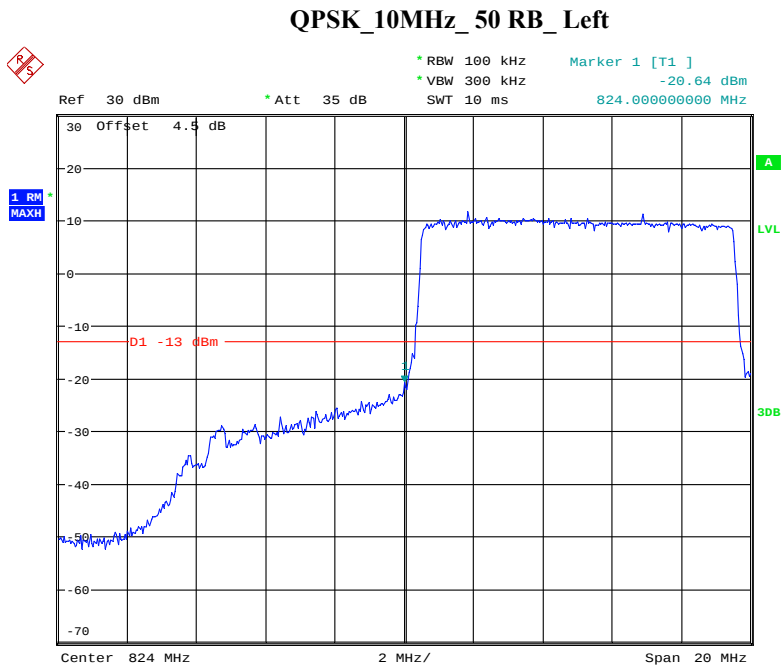


Date: 6.JUN.2020 01:05:38

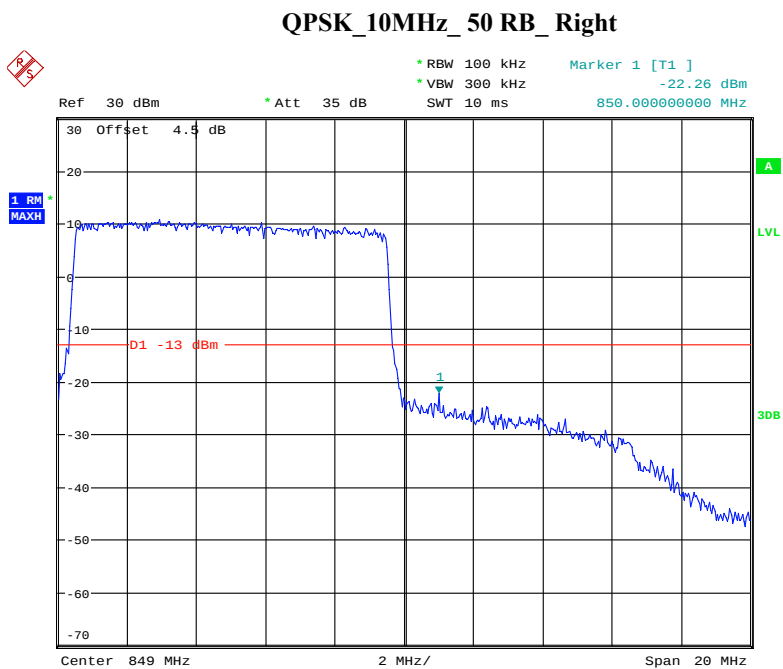
QPSK_5MHz_25 RB_ Right



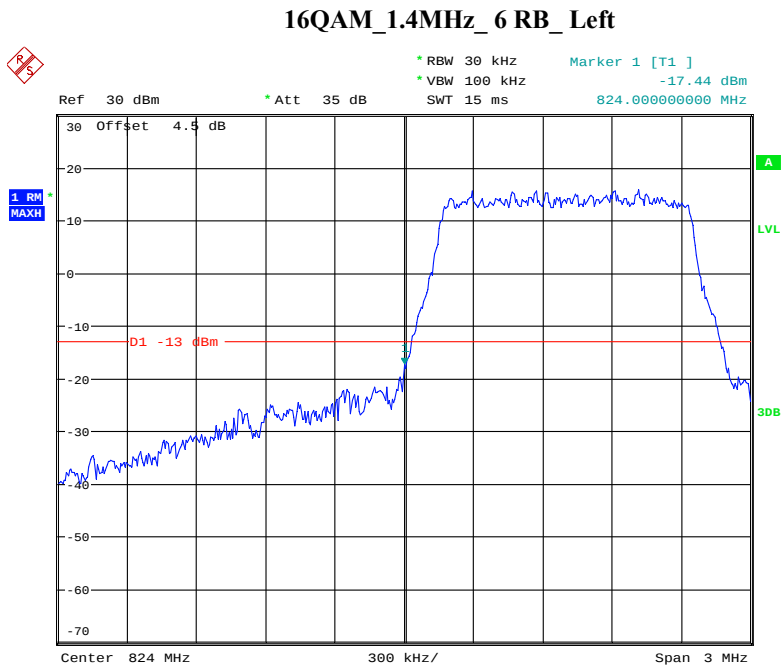
Date: 6.JUN.2020 01:06:13



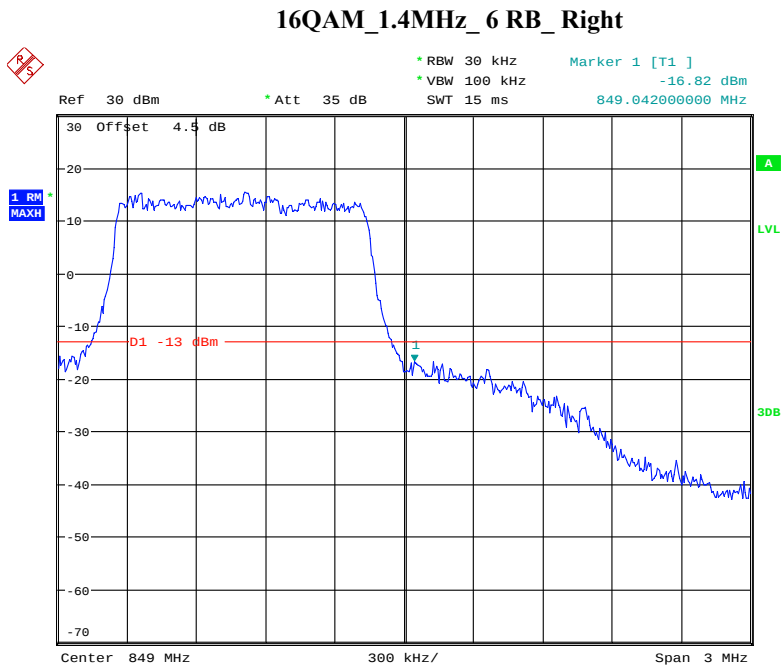
Date: 6.JUN.2020 01:06:55



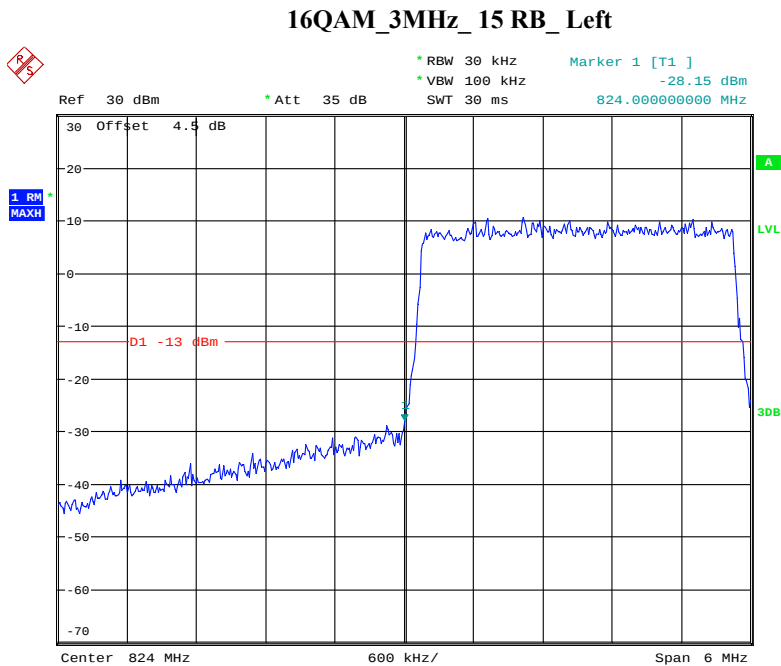
Date: 6.JUN.2020 01:07:31



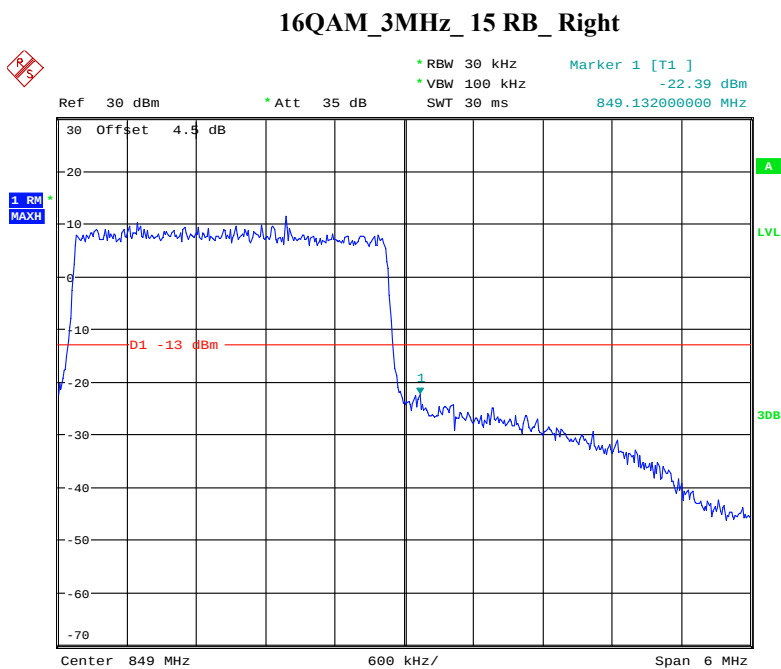
Date: 6.JUN.2020 01:03:21



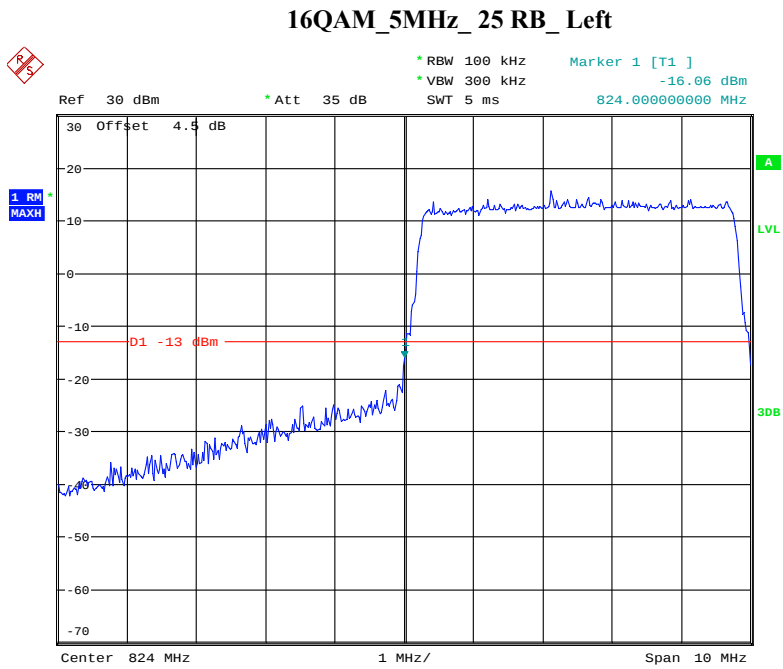
Date: 6.JUN.2020 01:03:58



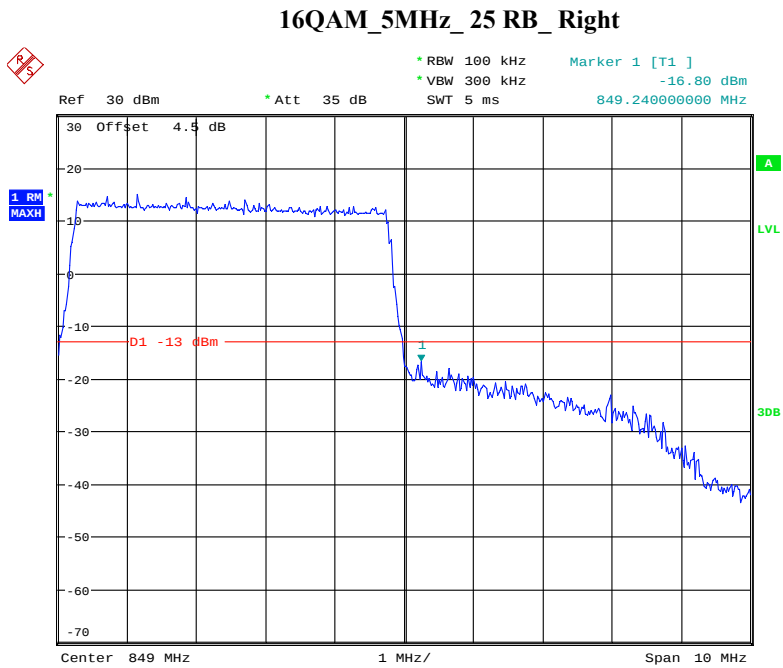
Date: 6.JUN.2020 01:04:40



Date: 6.JUN.2020 01:05:17

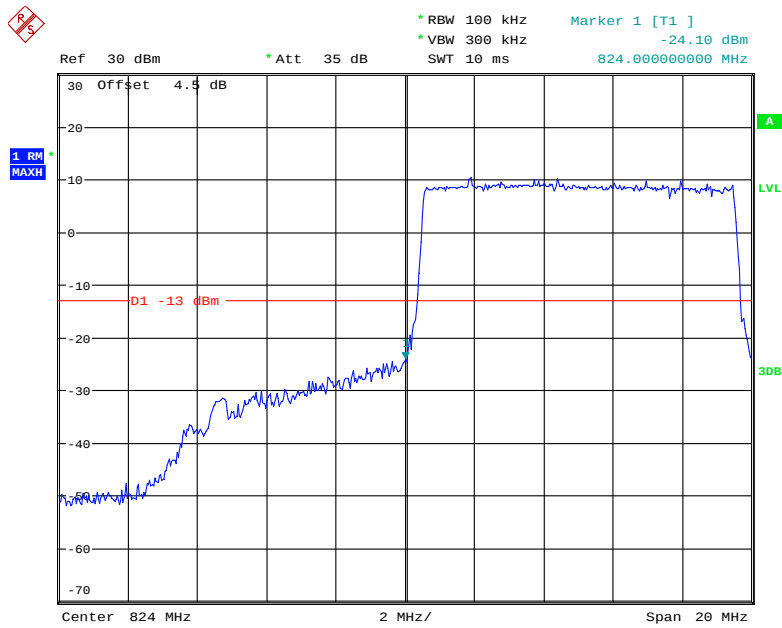


Date: 6.JUN.2020 01:05:55



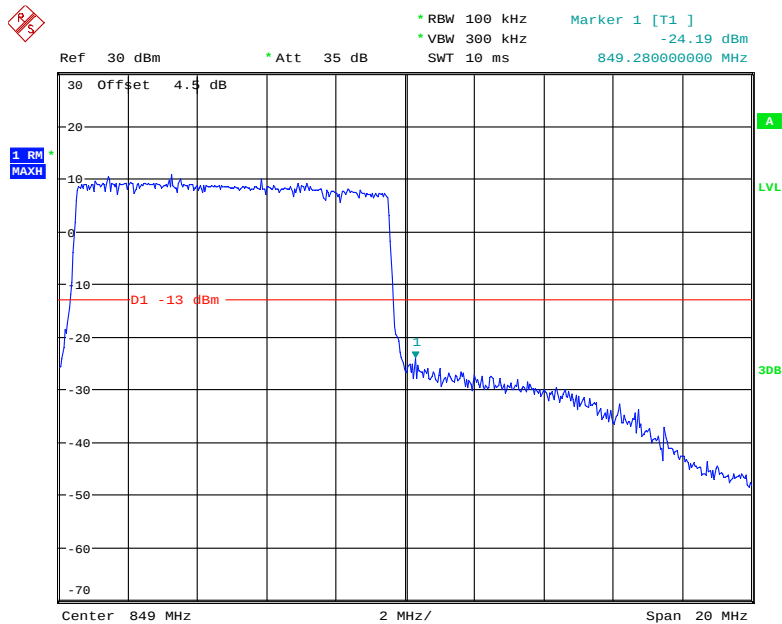
Date: 6.JUN.2020 01:06:33

16QAM_10MHz_50 RB_Left



Date: 6.JUN.2020 01:07:13

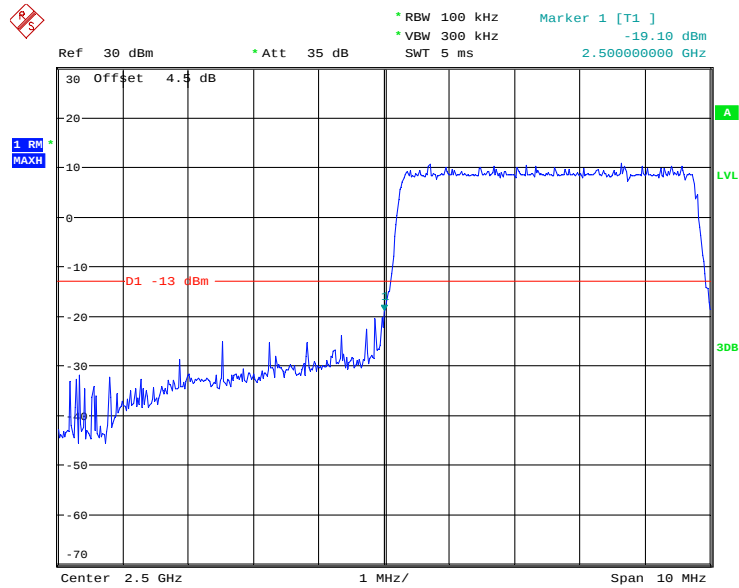
16QAM_10MHz_50 RB_Right



Date: 6.JUN.2020 01:07:49

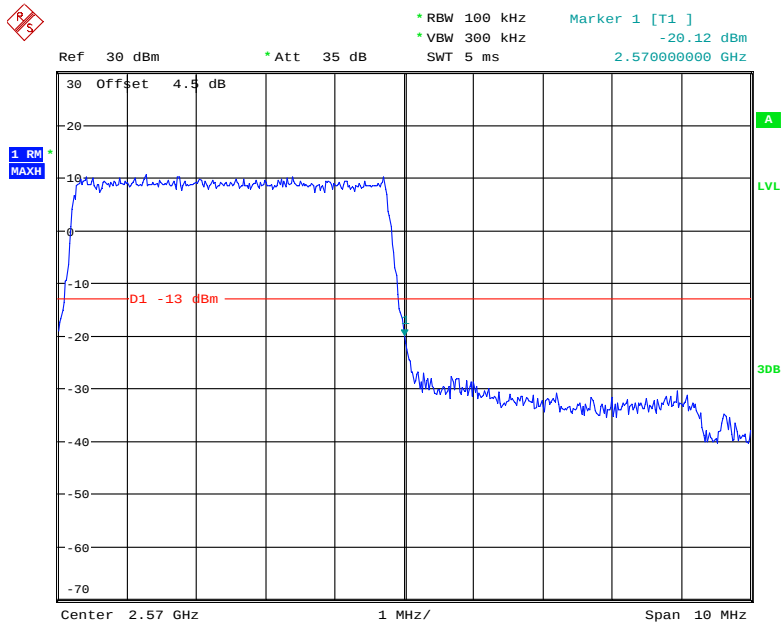
LTE Band 7

QPSK_5MHz_25 RB_ Left



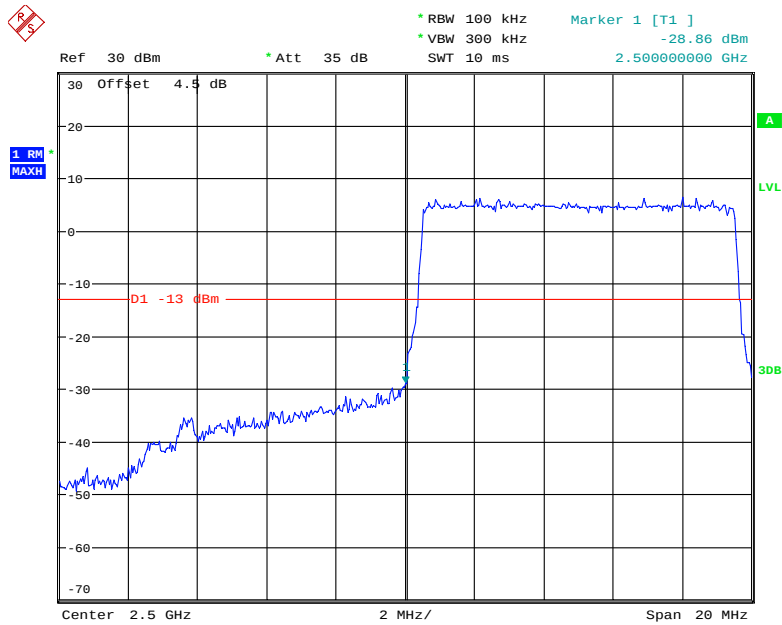
Date: 6.JUN.2020 01:08:13

QPSK_5MHz_25 RB_ Right



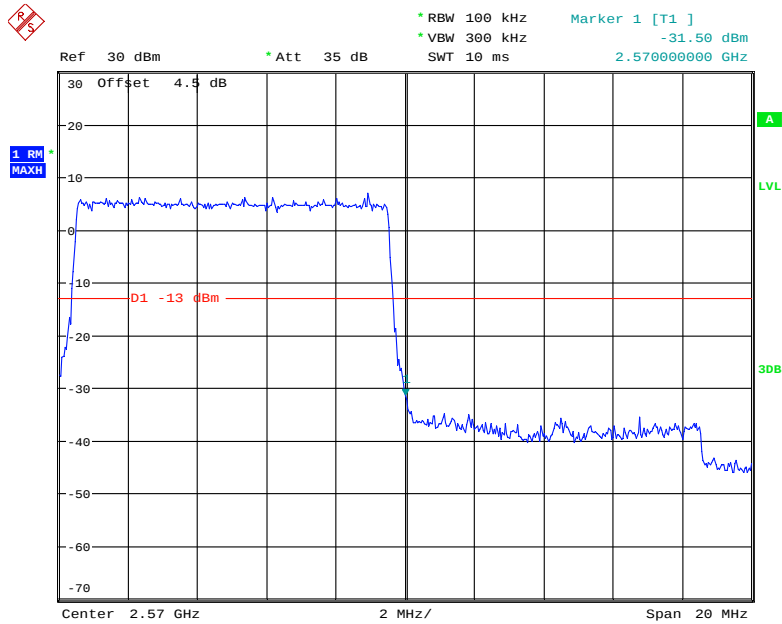
Date: 6.JUN.2020 01:08:48

QPSK_10MHz_50 RB_ Left



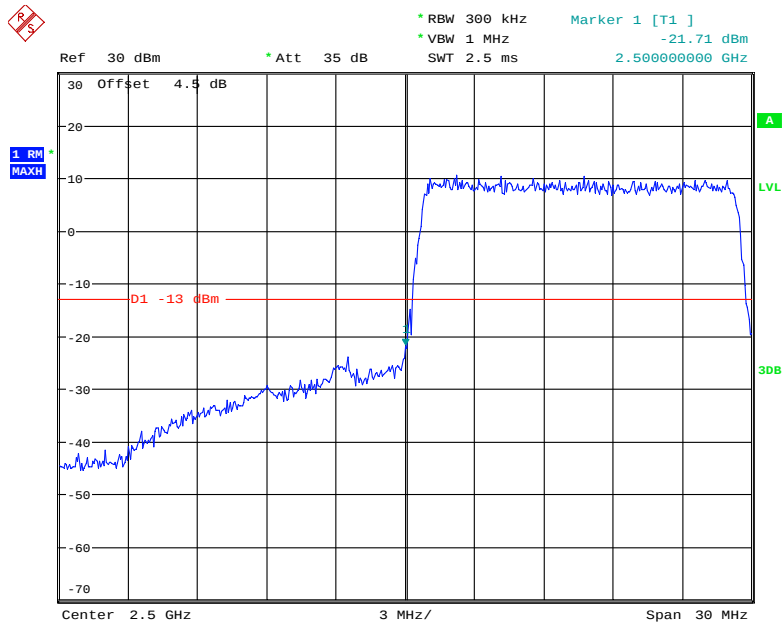
Date: 6.JUN.2020 01:09:25

QPSK_10MHz_50 RB_ Right



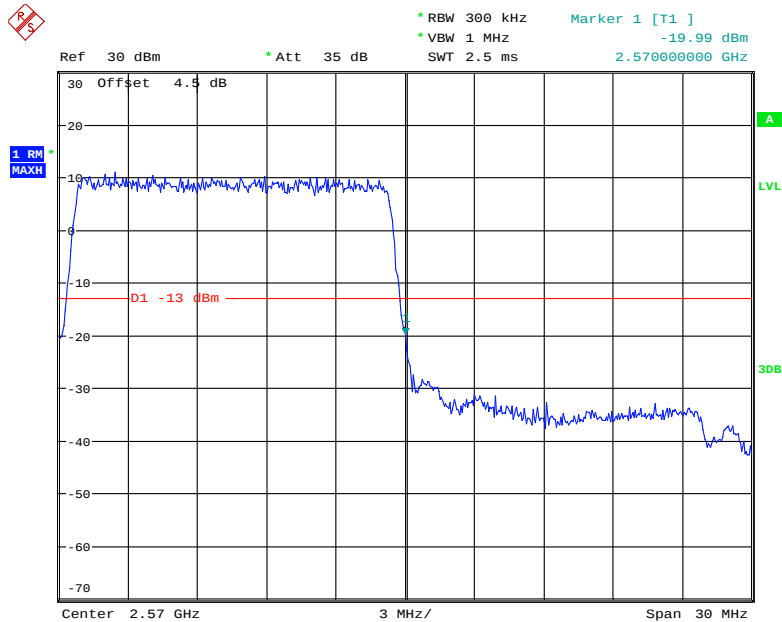
Date: 6.JUN.2020 01:10:02

QPSK_15MHz_75 RB_ Left



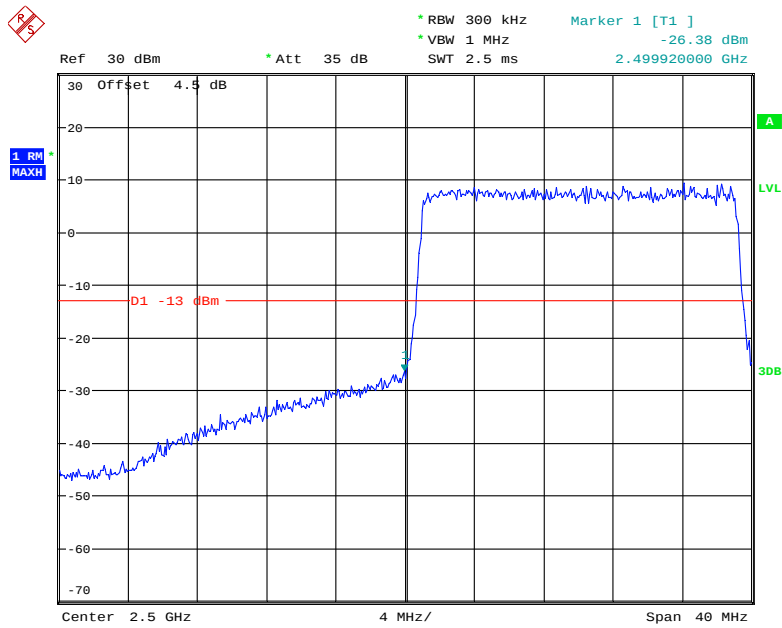
Date: 6.JUN.2020 01:10:44

QPSK_15MHz_75 RB_ Right



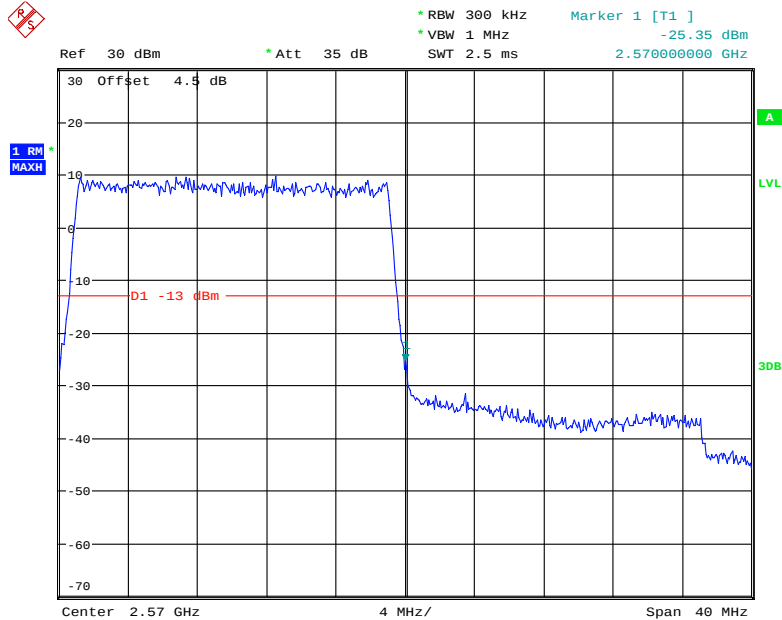
Date: 6.JUN.2020 01:11:25

QPSK_20MHz_100 RB_ Left

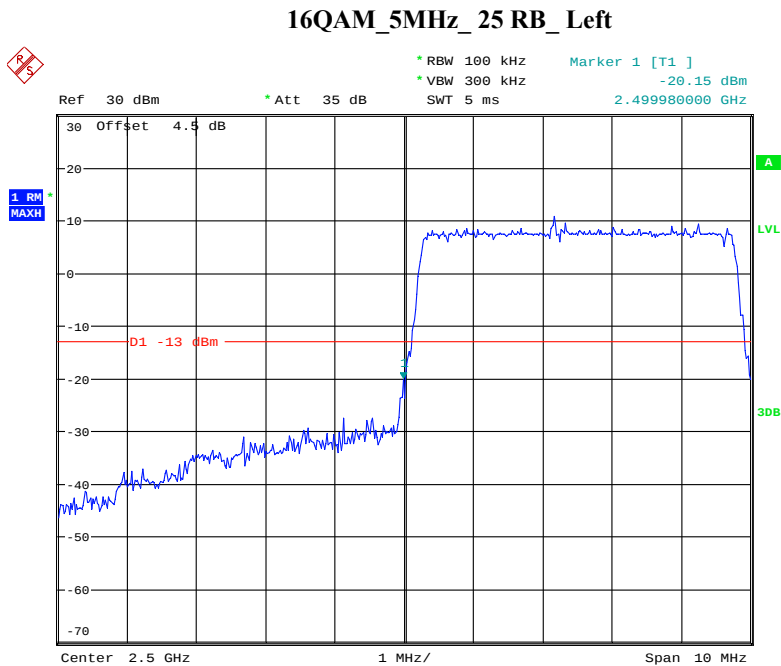


Date: 6.JUN.2020 01:12:13

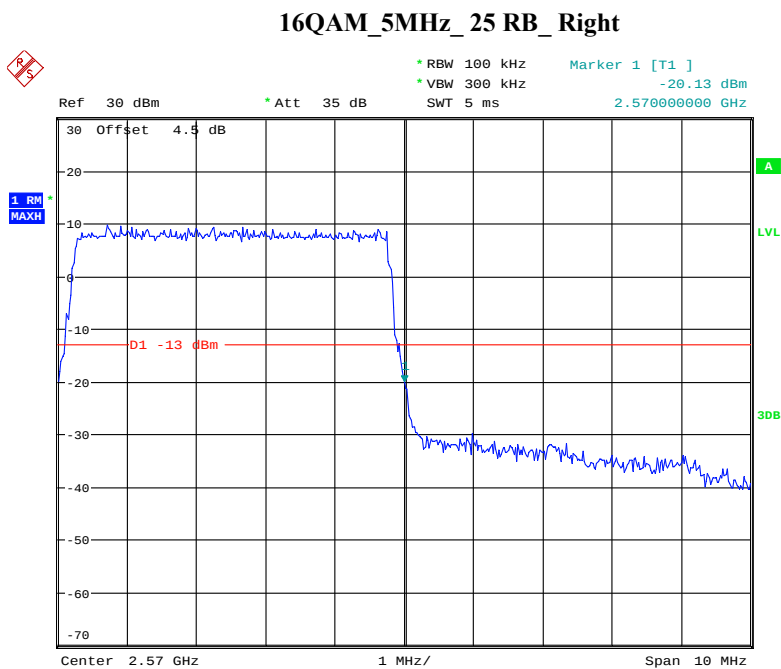
QPSK_20MHz_100 RB_ Right



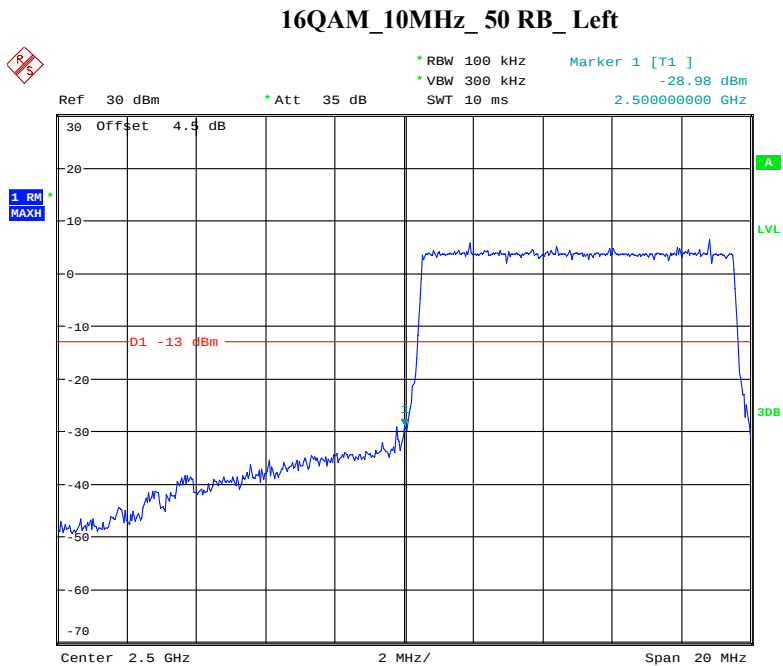
Date: 6.JUN.2020 01:12:54



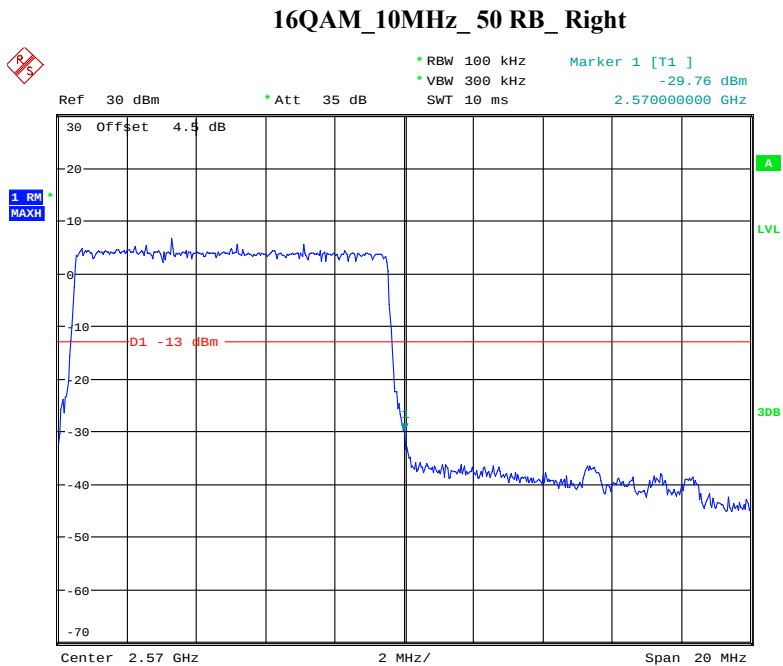
Date: 6.JUN.2020 01:08:30



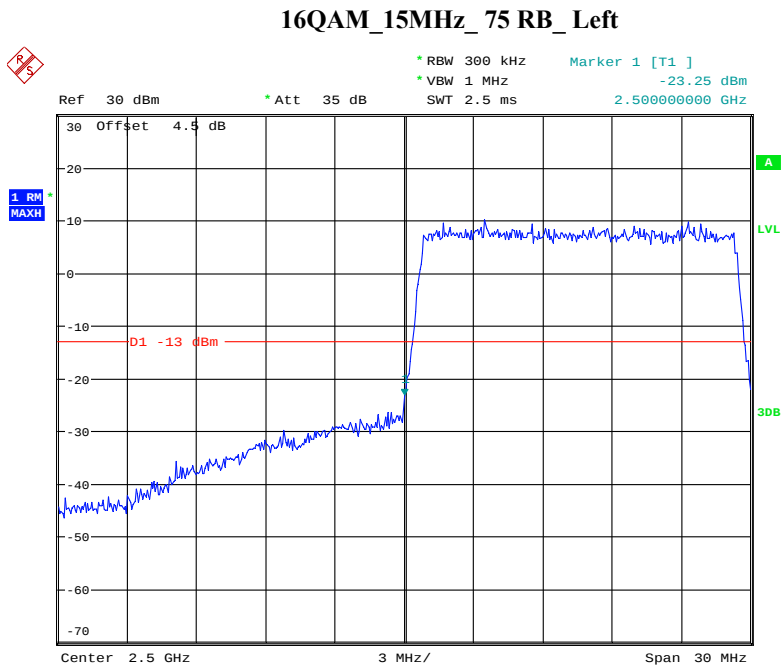
Date: 6.JUN.2020 01:09:04



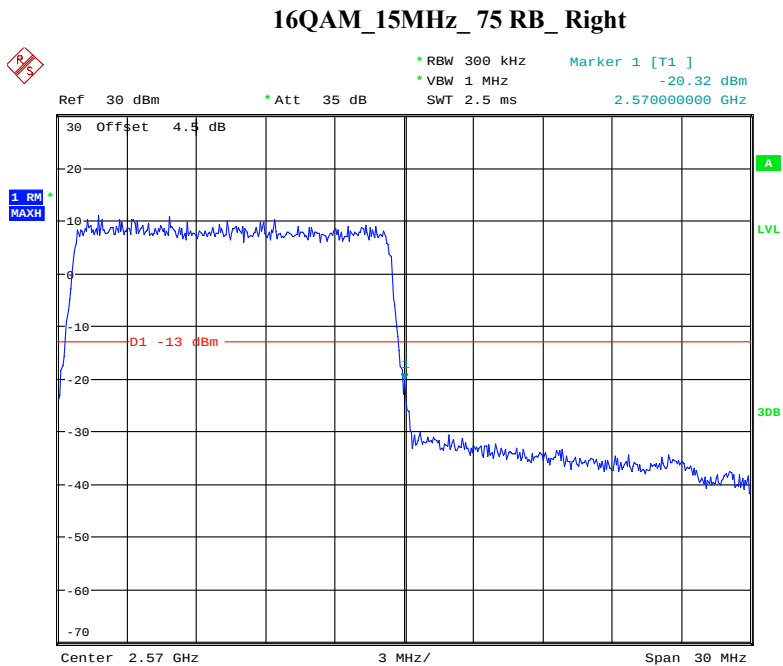
Date: 6.JUN.2020 01:09:43



Date: 6.JUN.2020 01:10:20

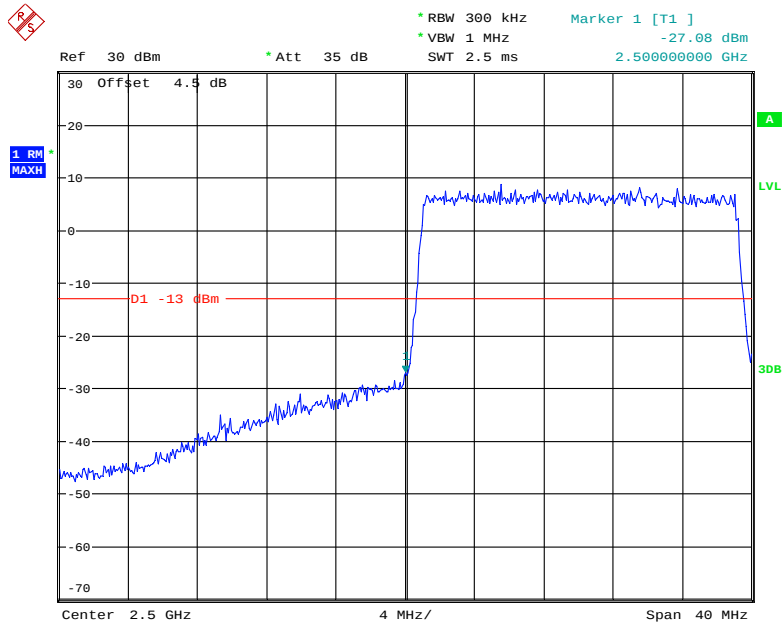


Date: 6.JUN.2020 01:11:04



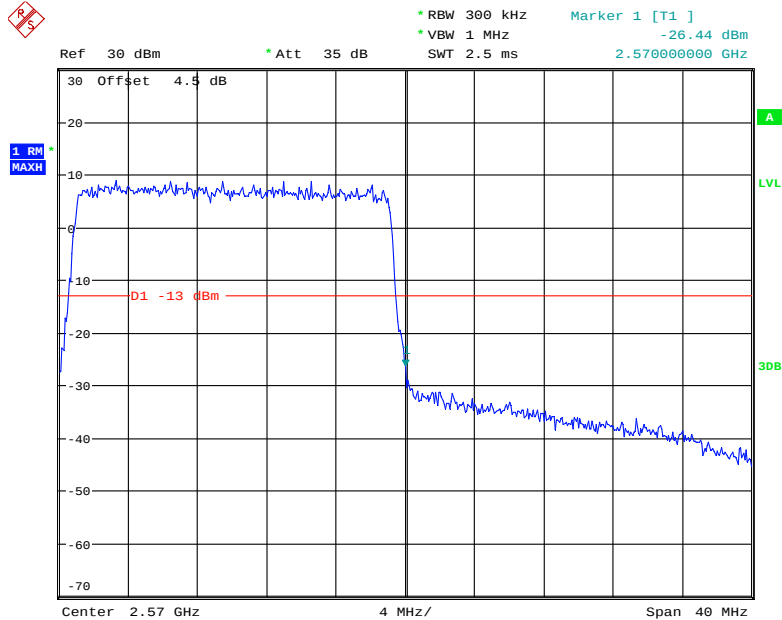
Date: 6.JUN.2020 01:11:46

16QAM_20MHz_100 RB_ Left



Date: 6.JUN.2020 01:12:33

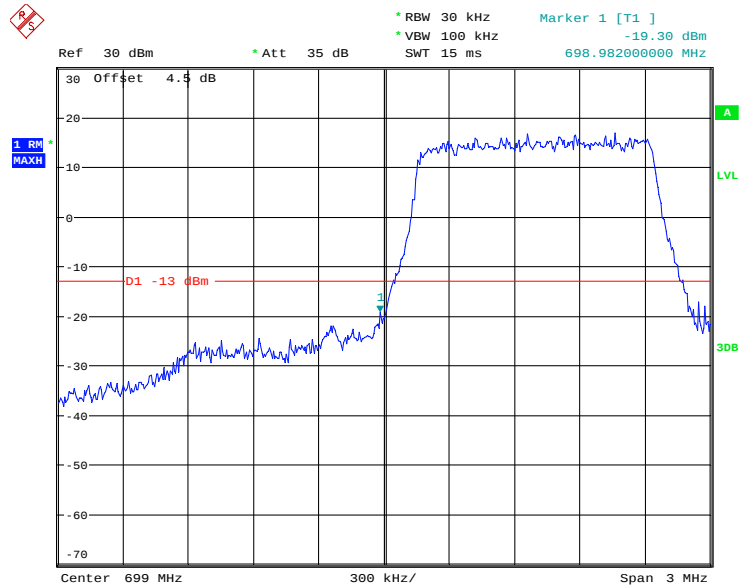
16QAM_20MHz_100 RB_ Right



Date: 6.JUN.2020 01:13:14

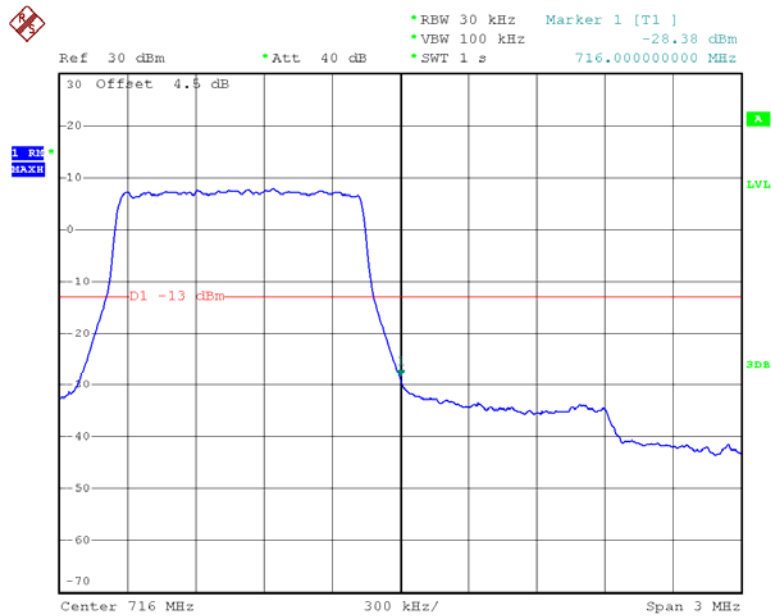
LTE Band 12

QPSK_1.4MHz_6 RB_ Left



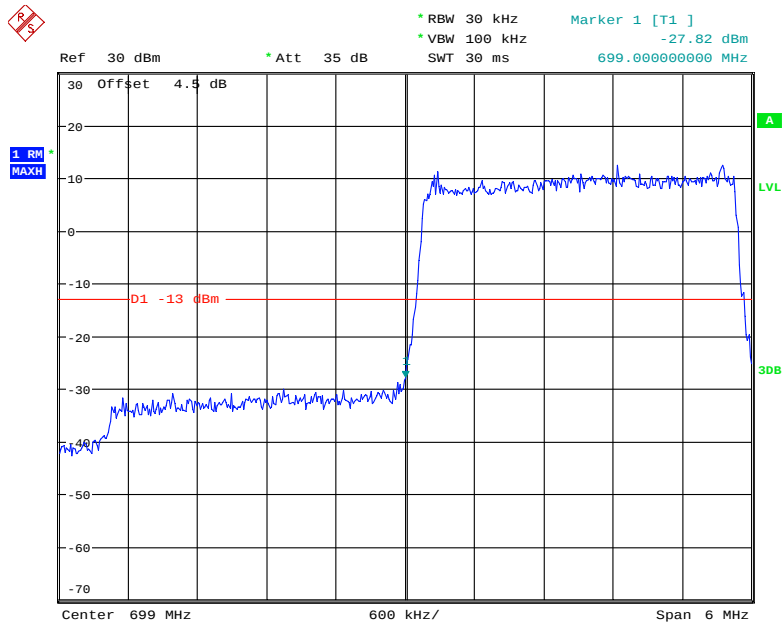
Date: 6.JUN.2020 01:13:39

QPSK_1.4MHz_6 RB_ Right



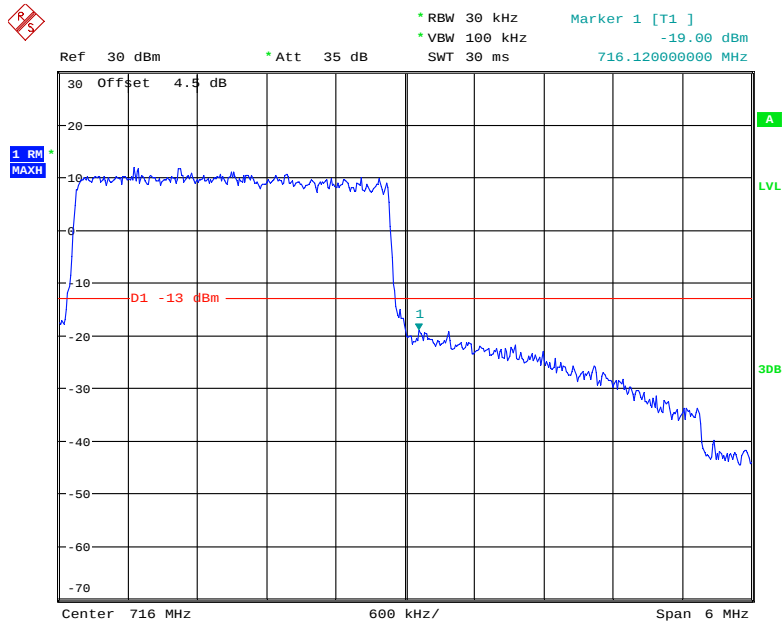
Date: 12.JUN.2020 00:30:37

QPSK_3MHz_15 RB_Left



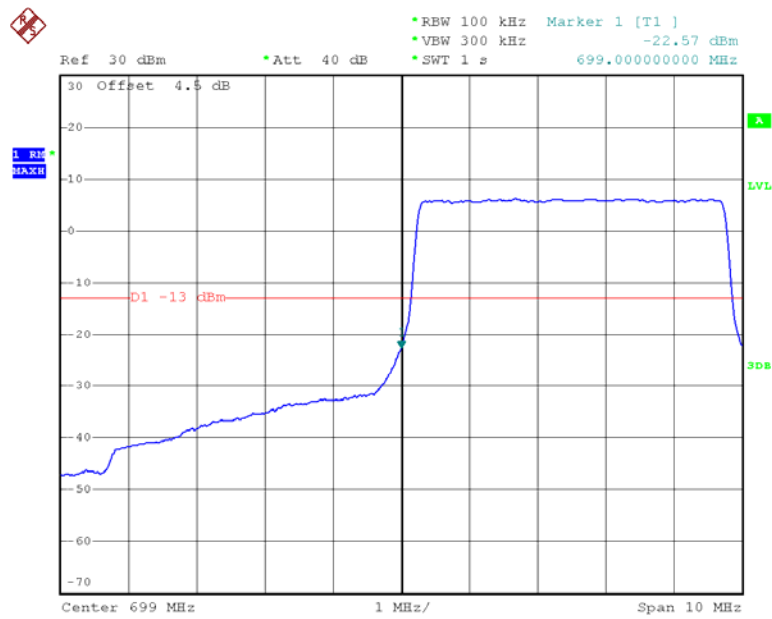
Date: 6.JUN.2020 01:14:54

QPSK_3MHz_15 RB_Right



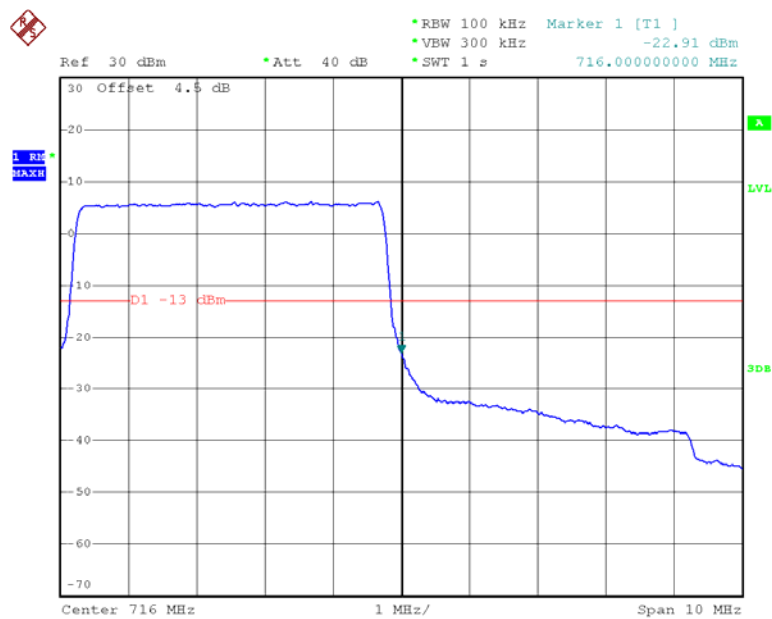
Date: 6.JUN.2020 01:15:28

QPSK_5MHz_25 RB_Left

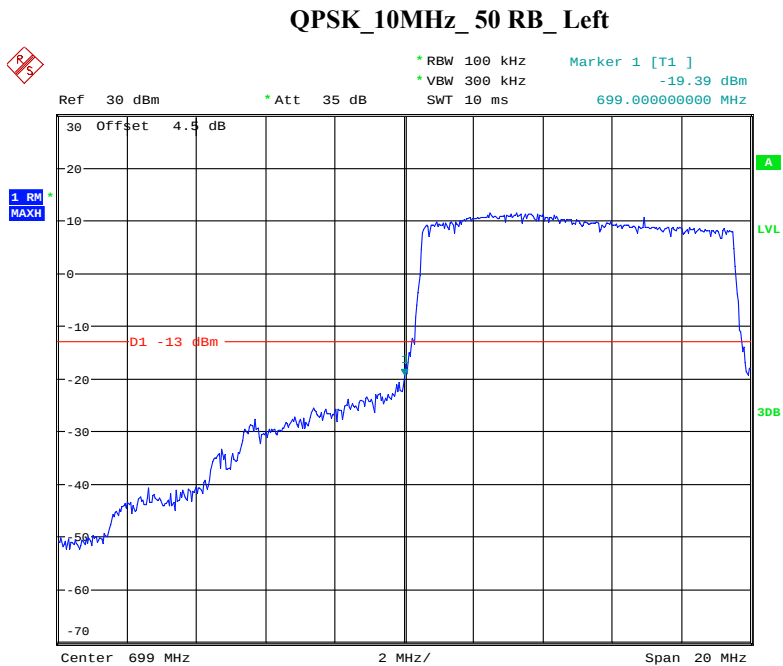


Date: 12.JUN.2020 00:32:21

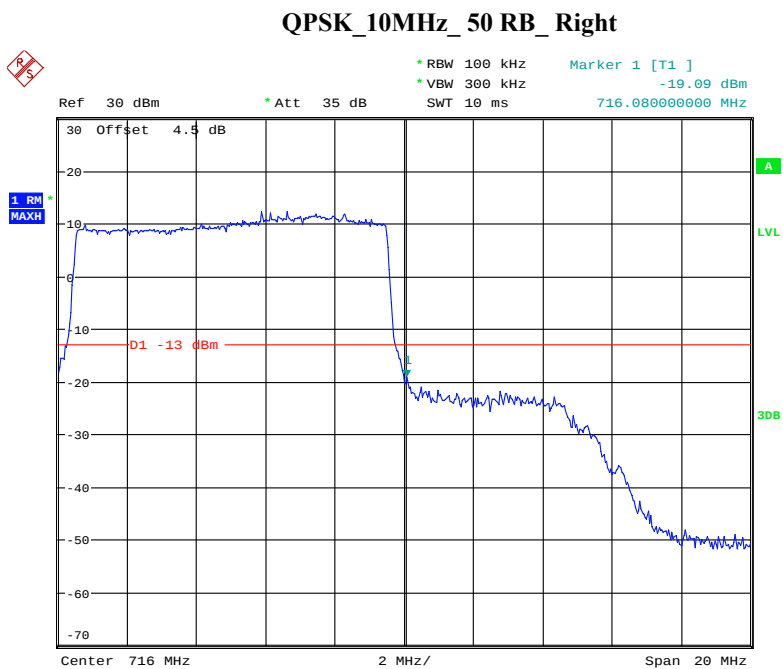
QPSK_5MHz_25 RB_Right



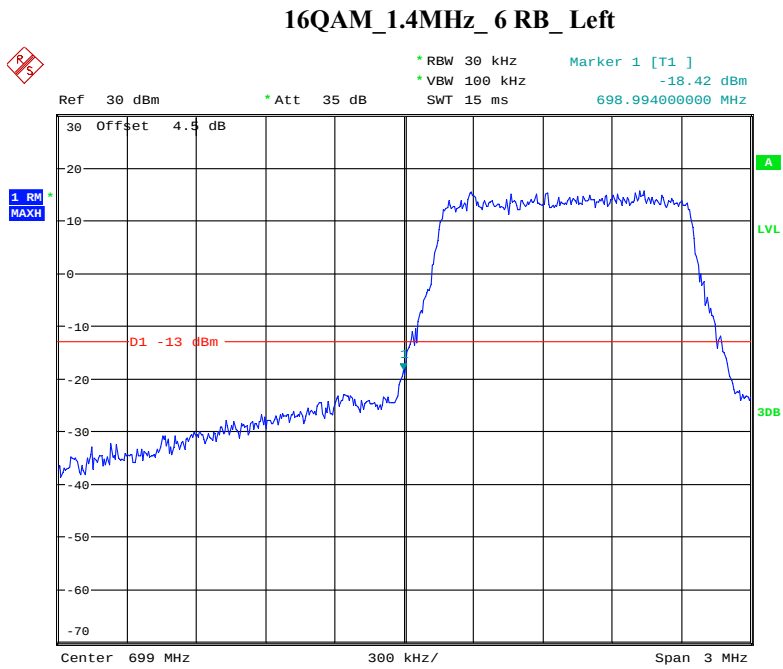
Date: 12.JUN.2020 00:37:58



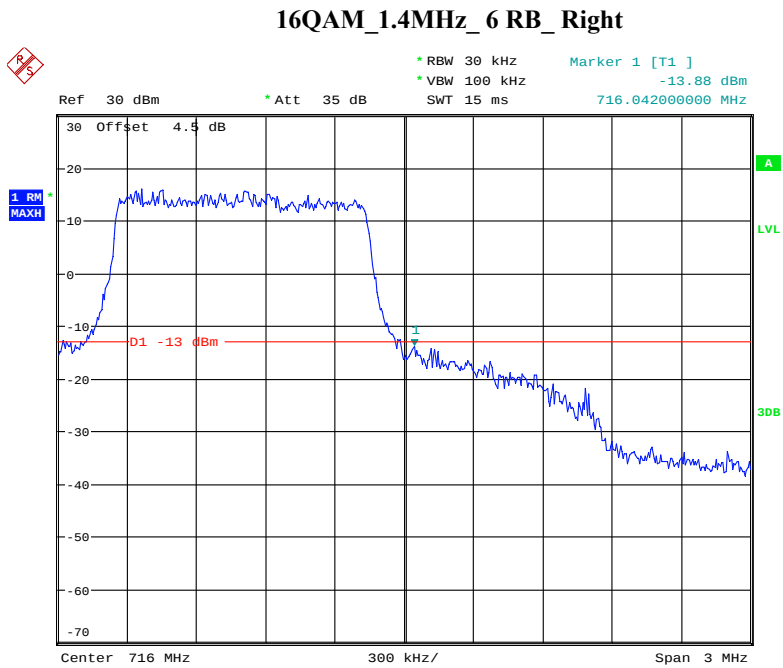
Date: 6.JUN.2020 01:17:32



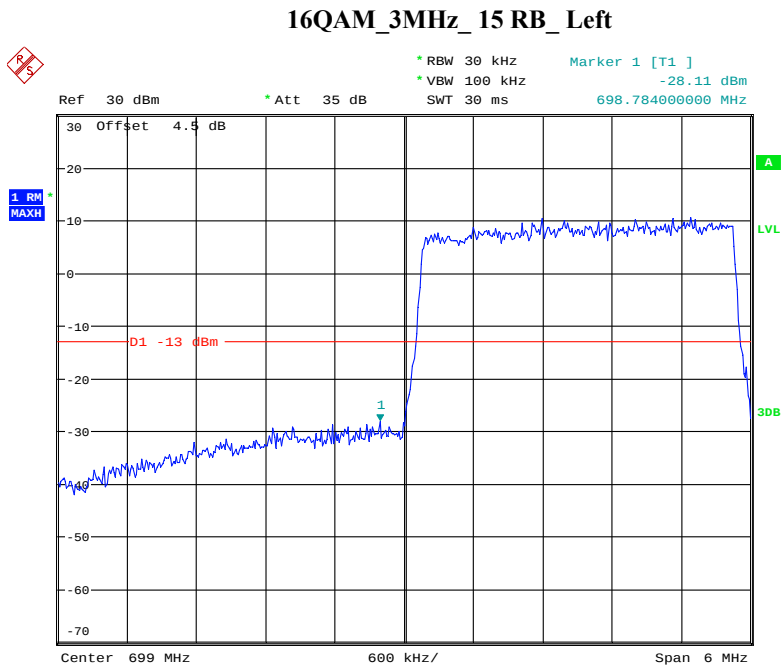
Date: 6.JUN.2020 01:18:08



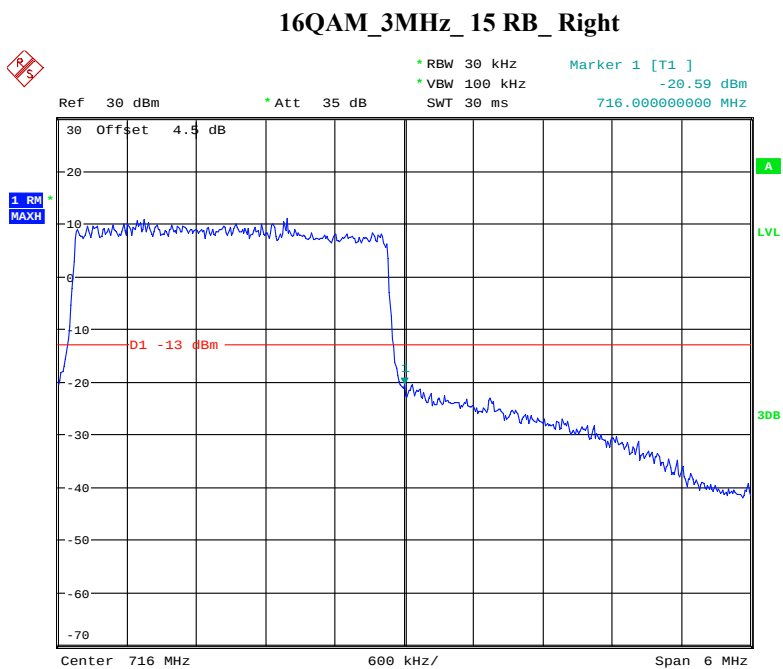
Date: 6.JUN.2020 01:13:58



Date: 6.JUN.2020 01:14:33

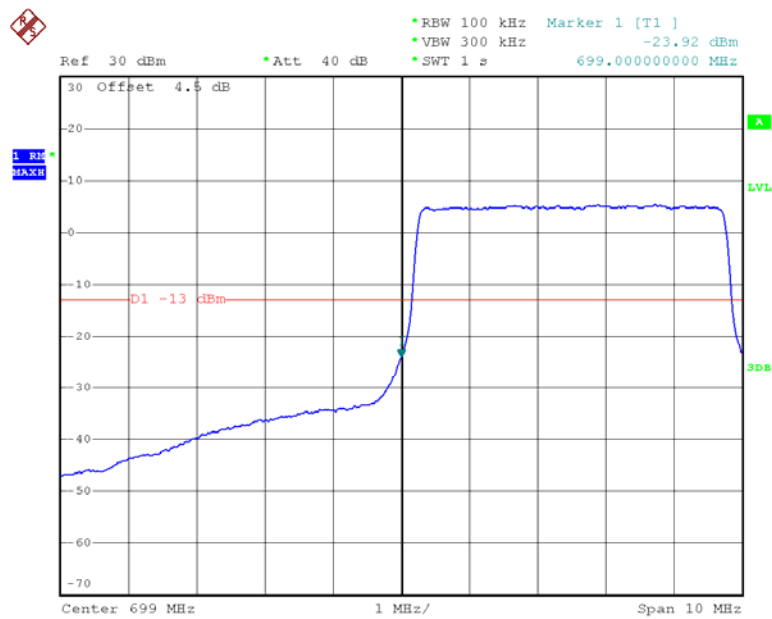


Date: 6.JUN.2020 01:15:11



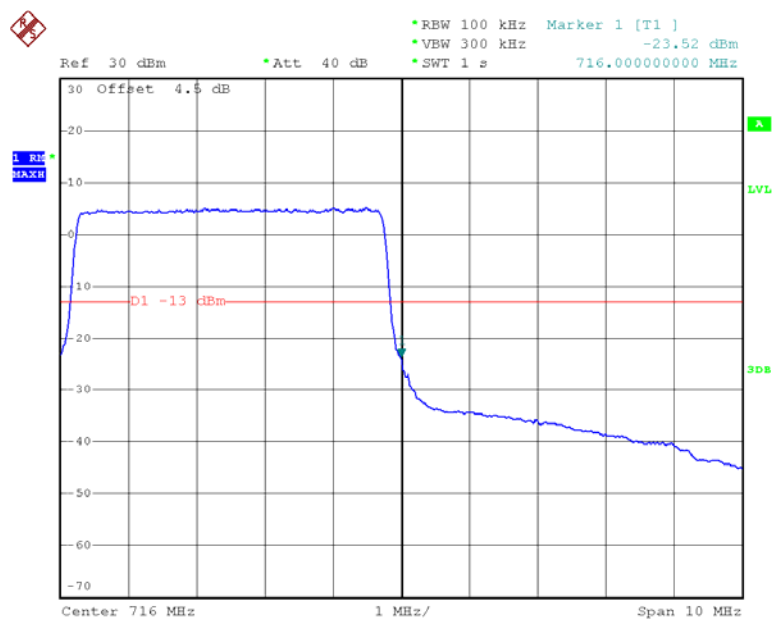
Date: 6.JUN.2020 01:15:48

16QAM_5MHz_25 RB_ Left

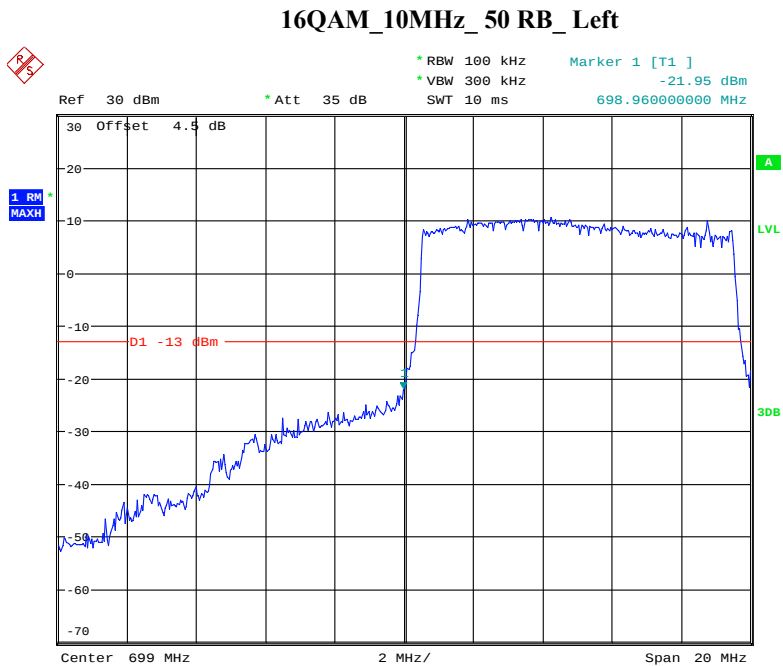


Date: 12.JUN.2020 00:36:59

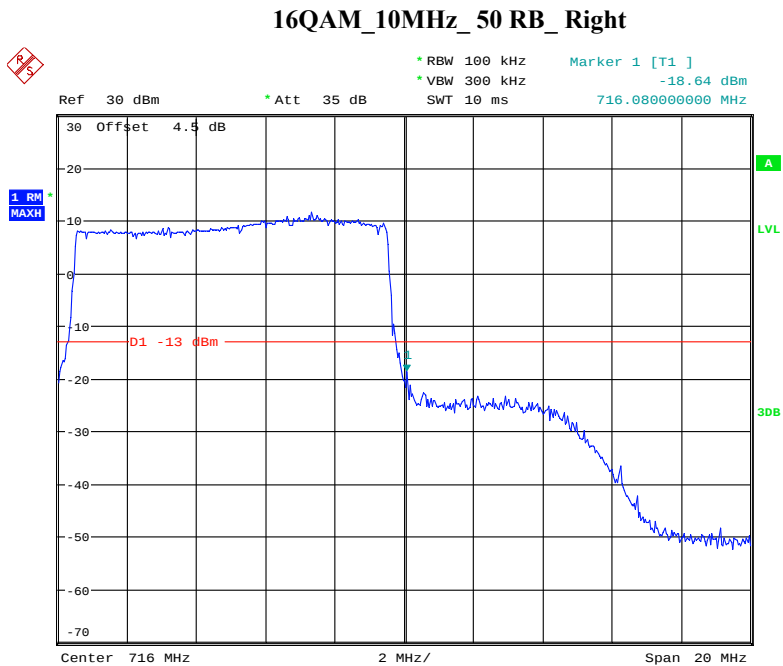
16QAM_5MHz_25 RB_ Right



Date: 12.JUN.2020 00:38:25



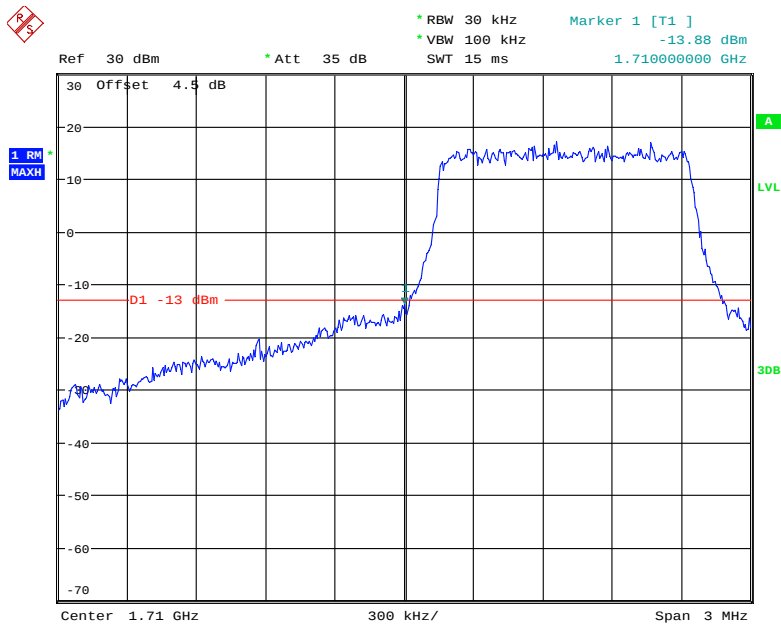
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Date: 6.JUN.2020 01:18:26

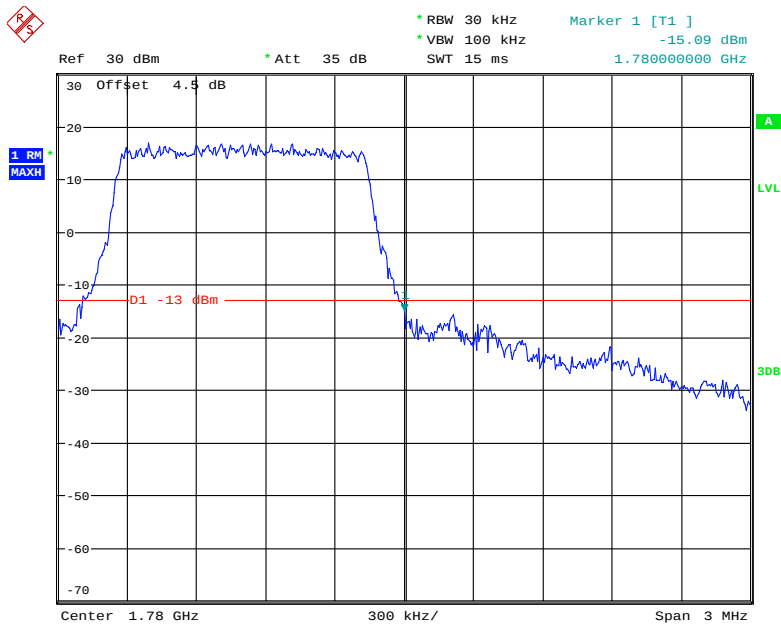
LTE Band 66

QPSK_1.4MHz_6 RB_ Left



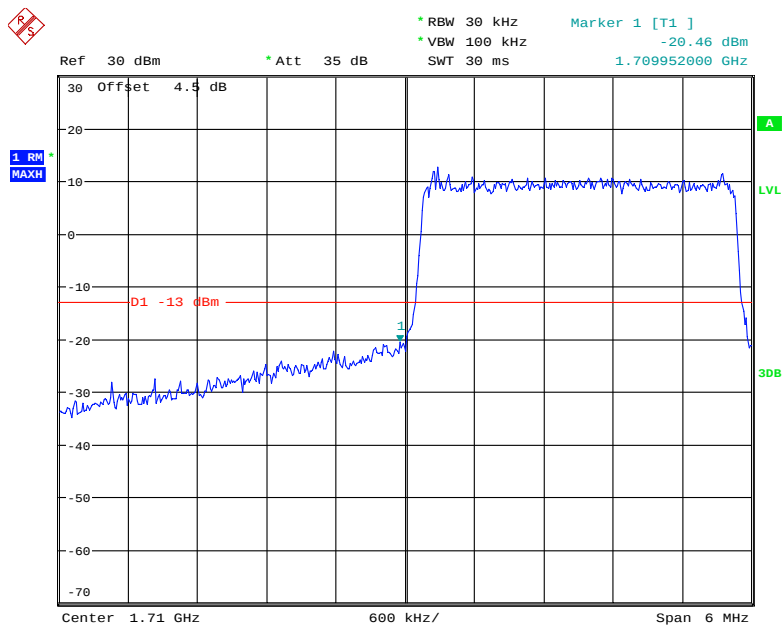
Date: 6.JUN.2020 01:18:50

QPSK_1.4MHz_6 RB_ Right



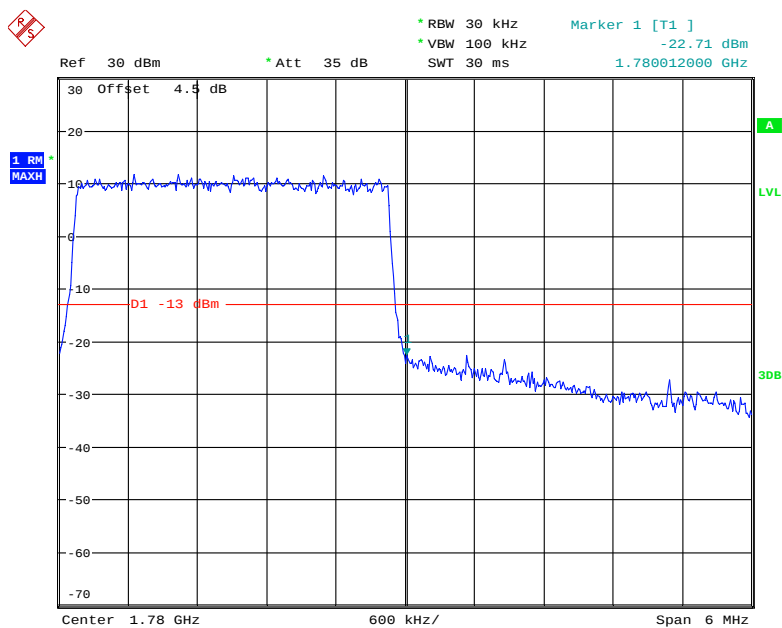
Date: 6.JUN.2020 01:19:27

QPSK_3MHz_15 RB_Left



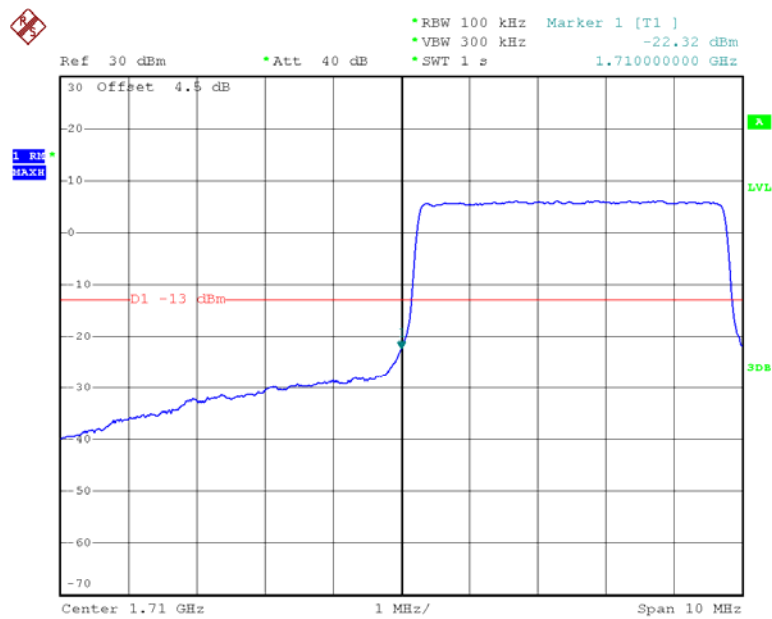
Date: 6.JUN.2020 01:20:07

QPSK_3MHz_15 RB_Right



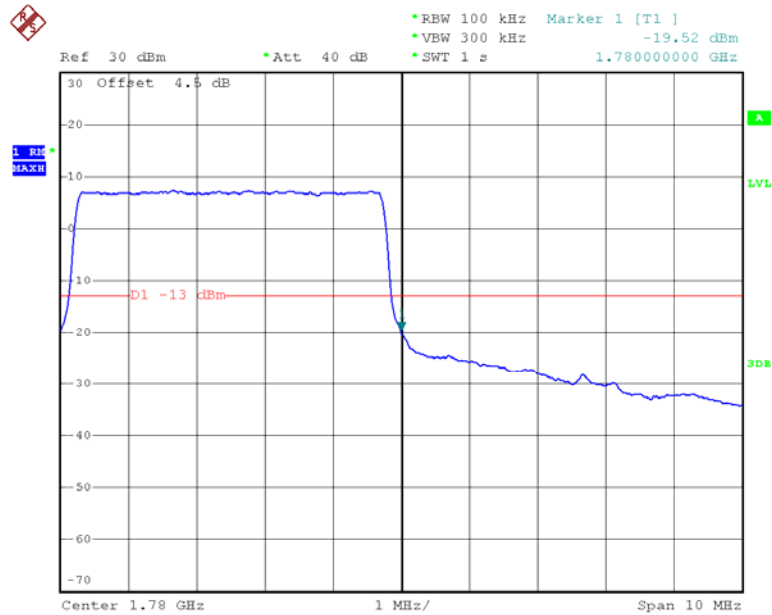
Date: 6.JUN.2020 01:20:45

QPSK_5MHz_25 RB_Left



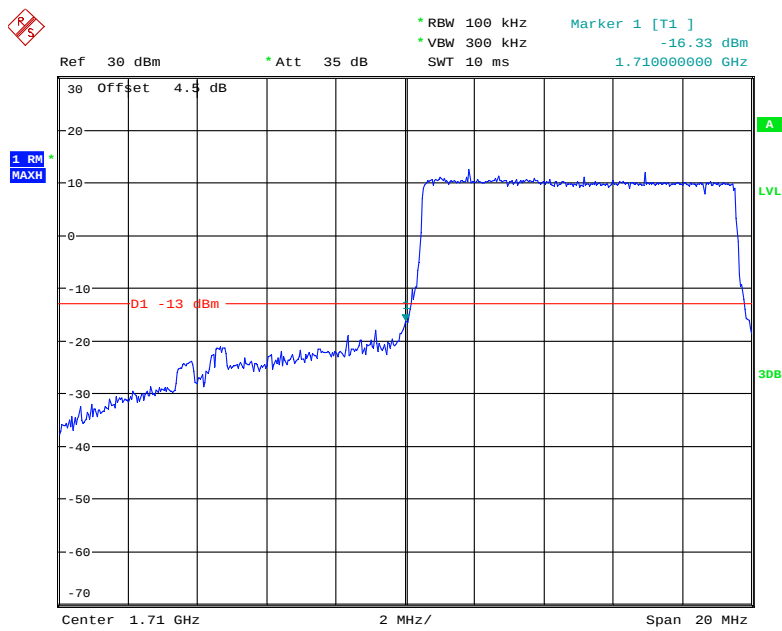
Date: 12.JUN.2020 00:40:01

QPSK_5MHz_25 RB_Right



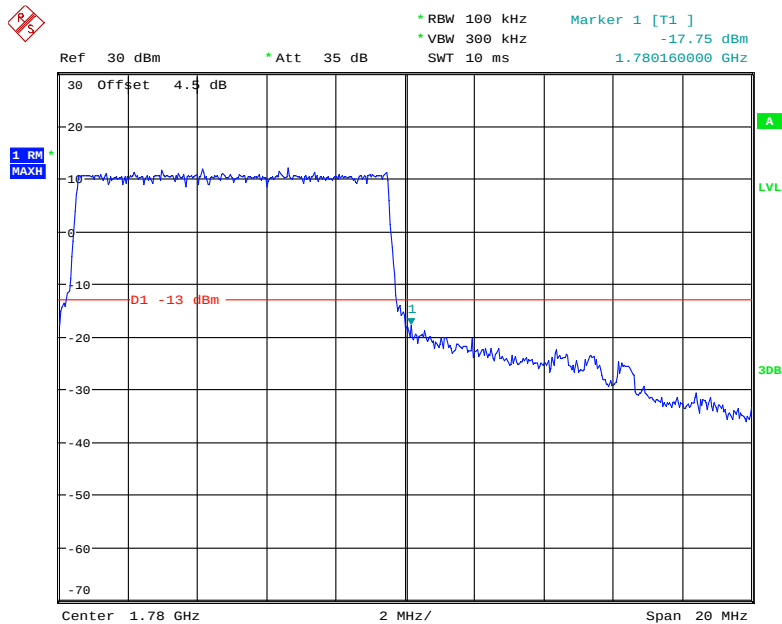
Date: 12.JUN.2020 00:42:13

QPSK_10MHz_50 RB_ Left



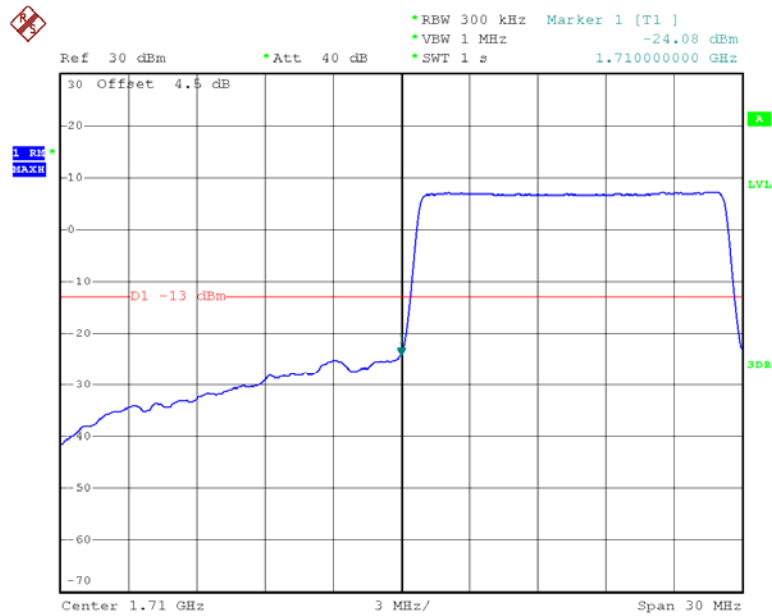
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QPSK_10MHz_50 RB_ Right



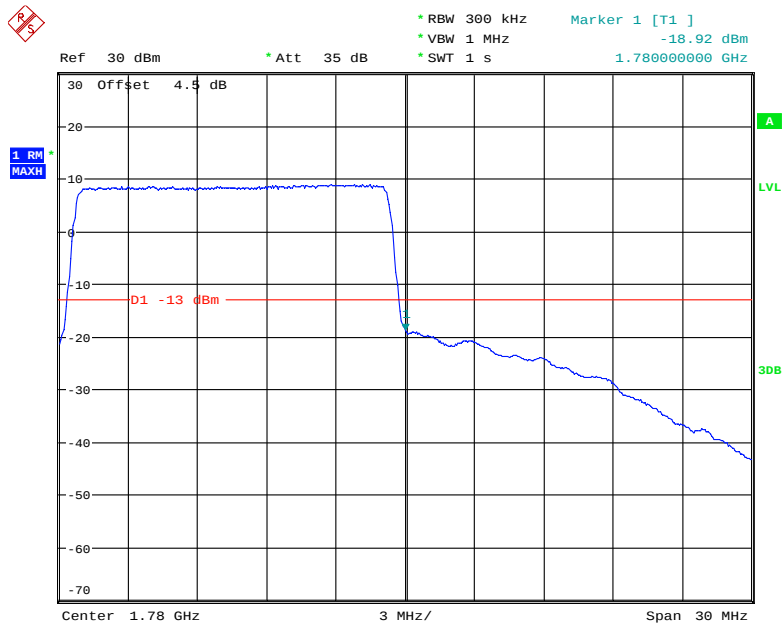
Date: 6.JUN.2020 01:23:34

QPSK_15MHz_75 RB_ Left

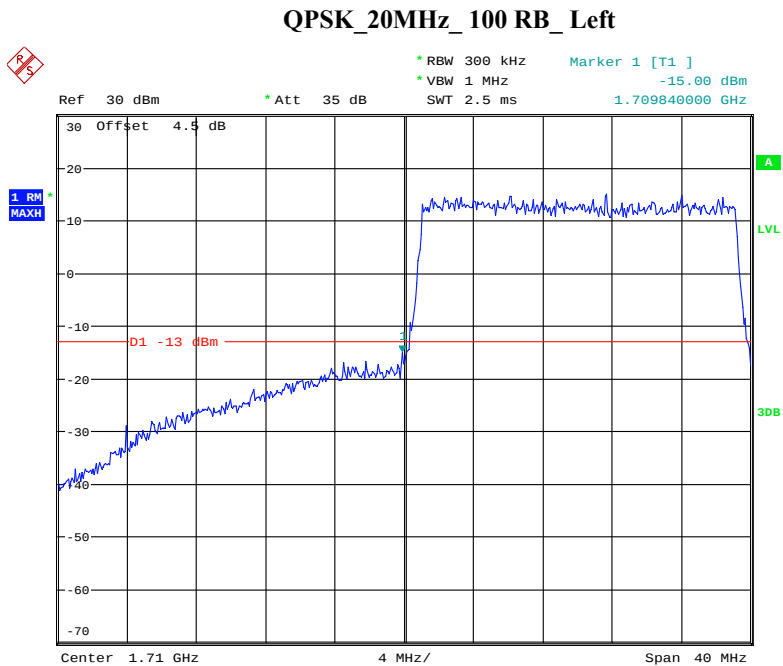


Date: 12.JUN.2020 00:44:05

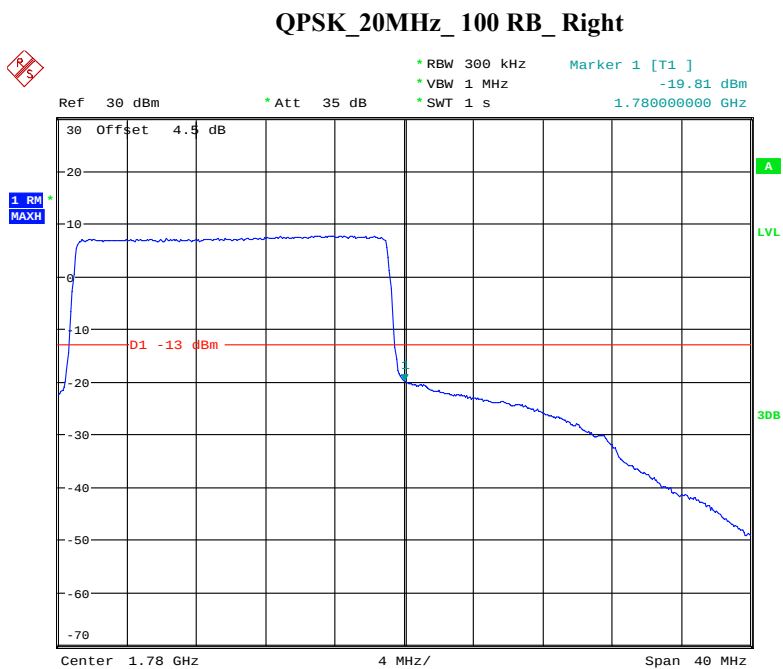
QPSK_15MHz_75 RB_ Right



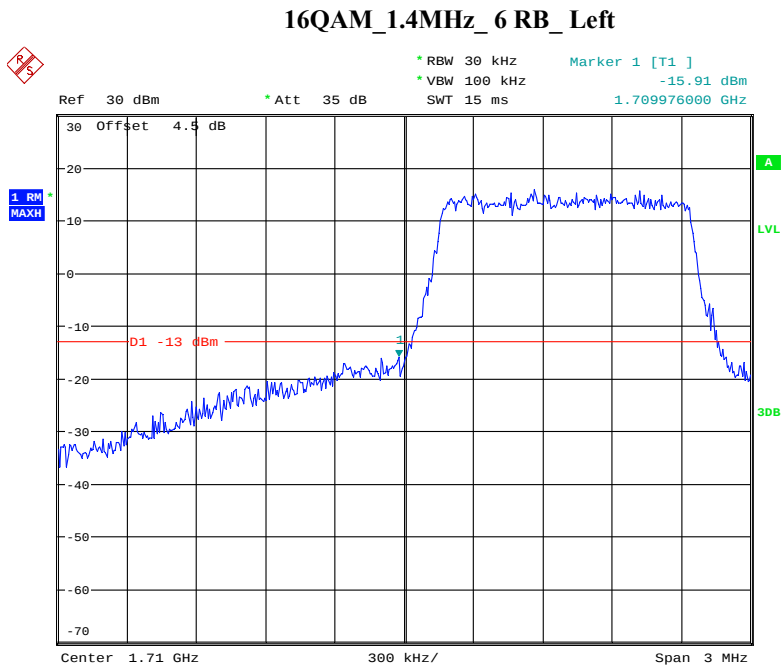
Date: 6.JUN.2020 01:25:05



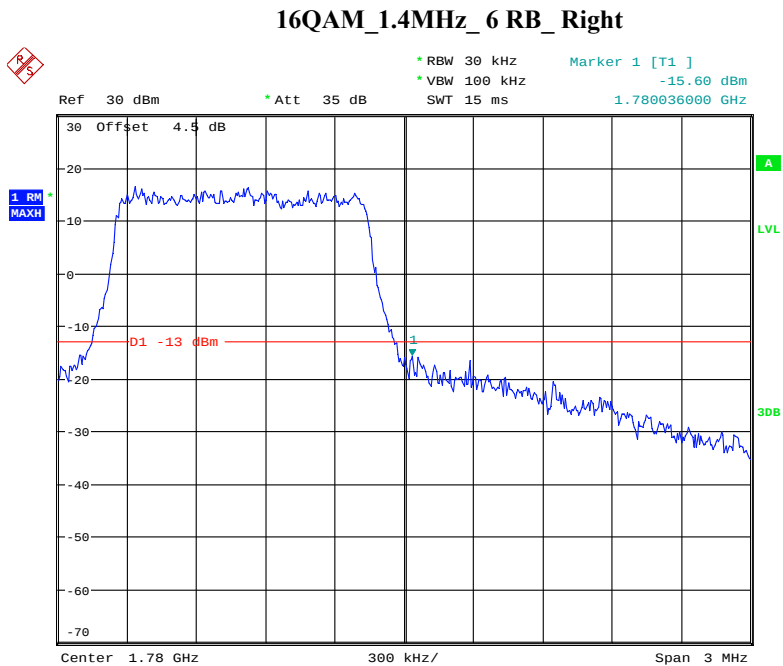
Date: 6.JUN.2020 01:25:51



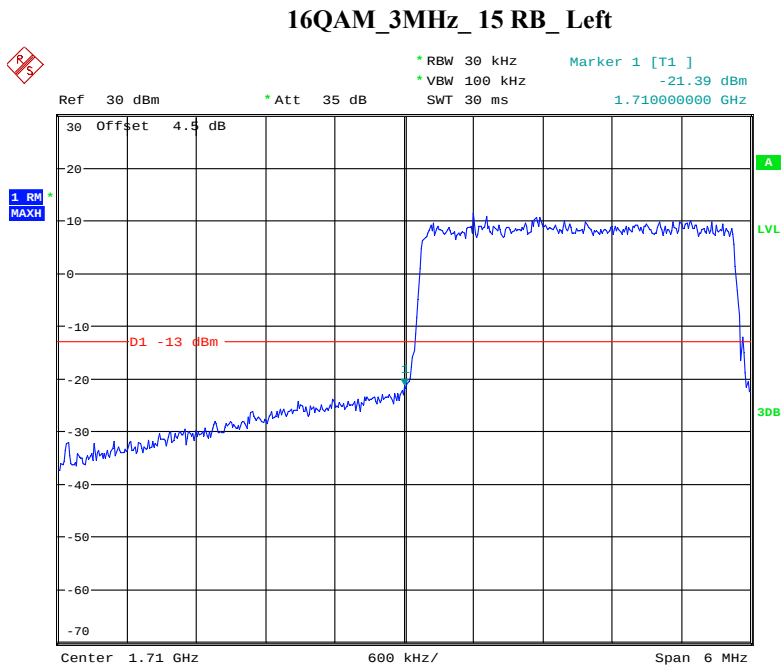
Date: 6.JUN.2020 01:26:38



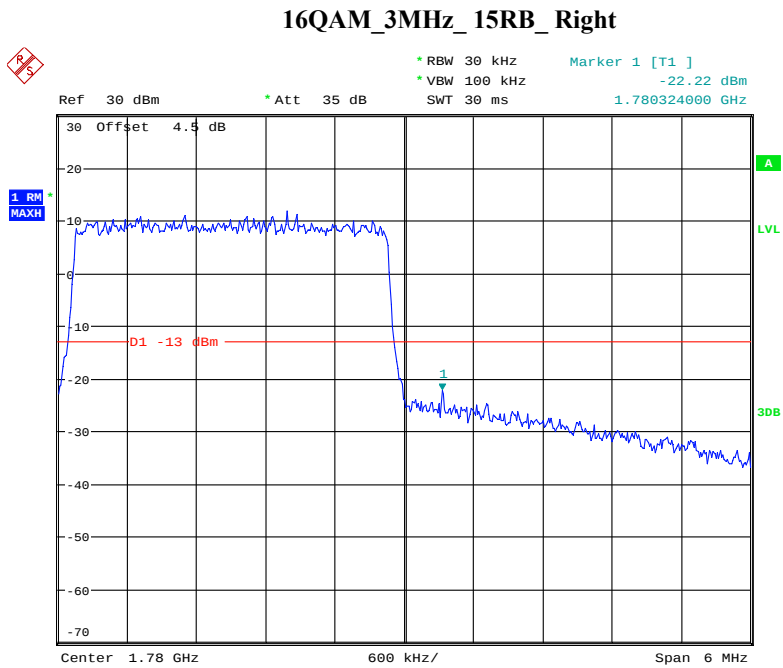
Date: 6.JUN.2020 01:19:07



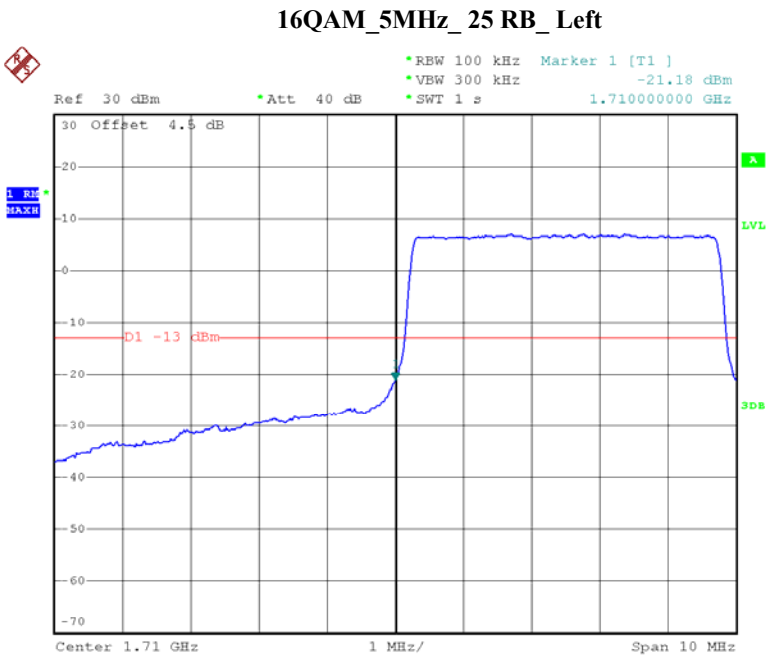
Date: 6.JUN.2020 01:19:47



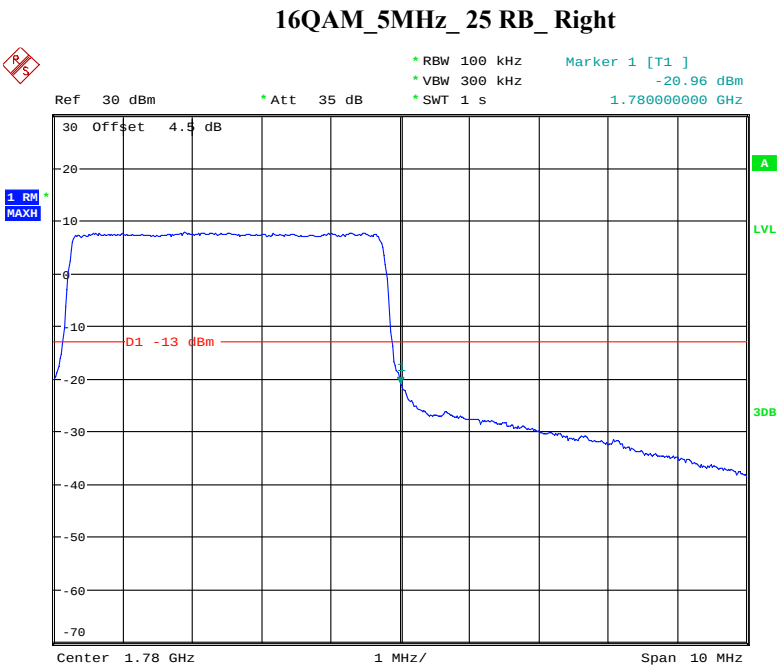
Date: 6.JUN.2020 01:20:27



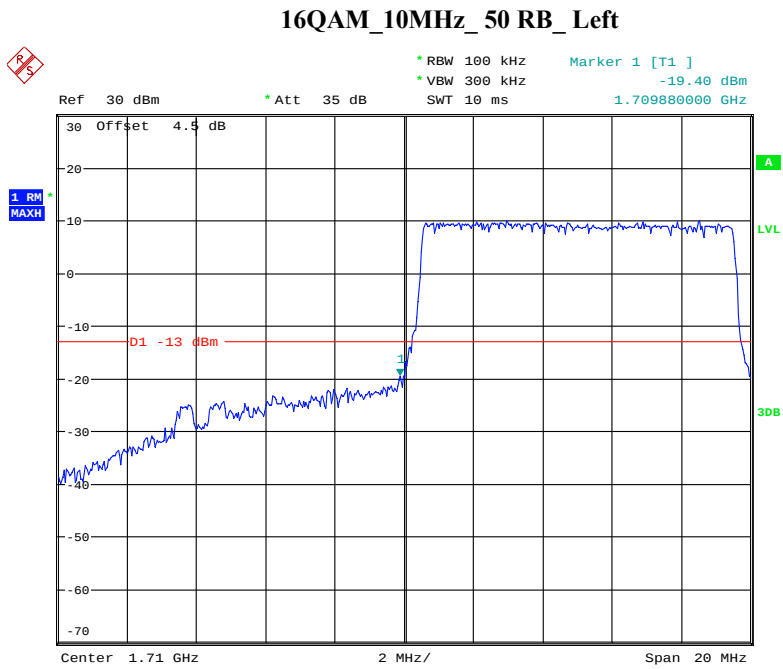
Date: 6.JUN.2020 01:21:02



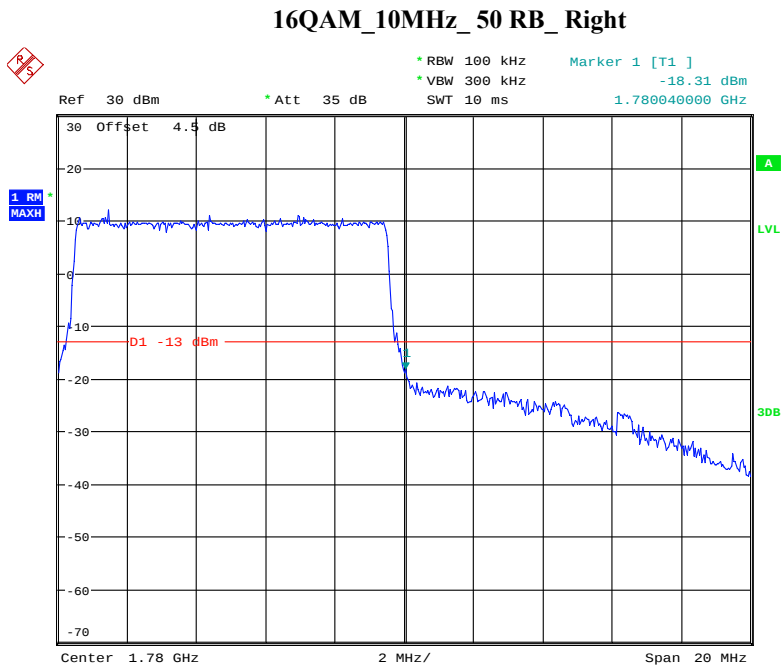
Date: 12.JUN.2020 00:40:26



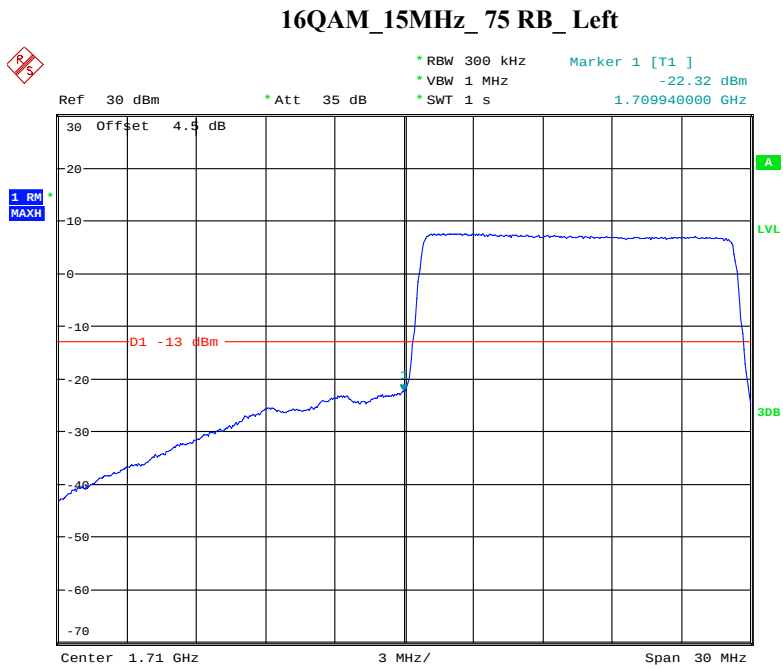
Date: 6.JUN.2020 01:22:34



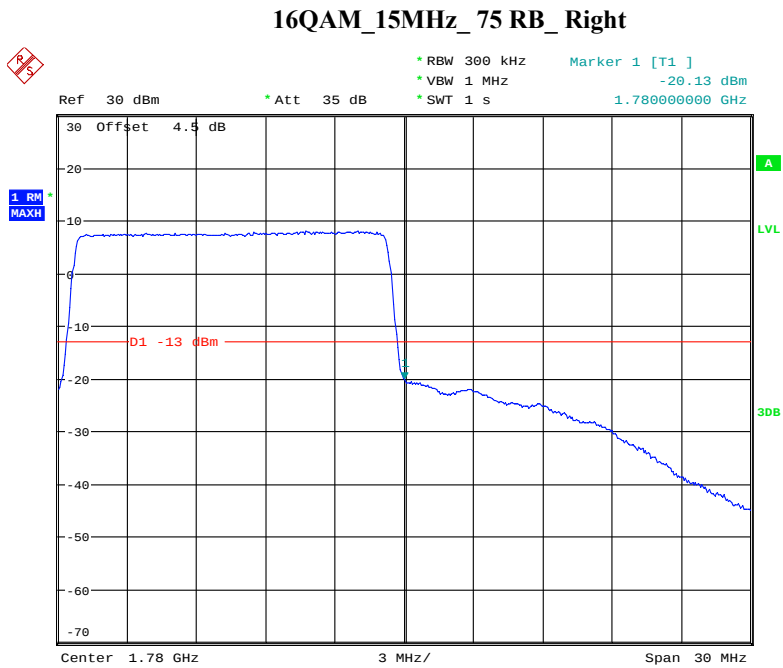
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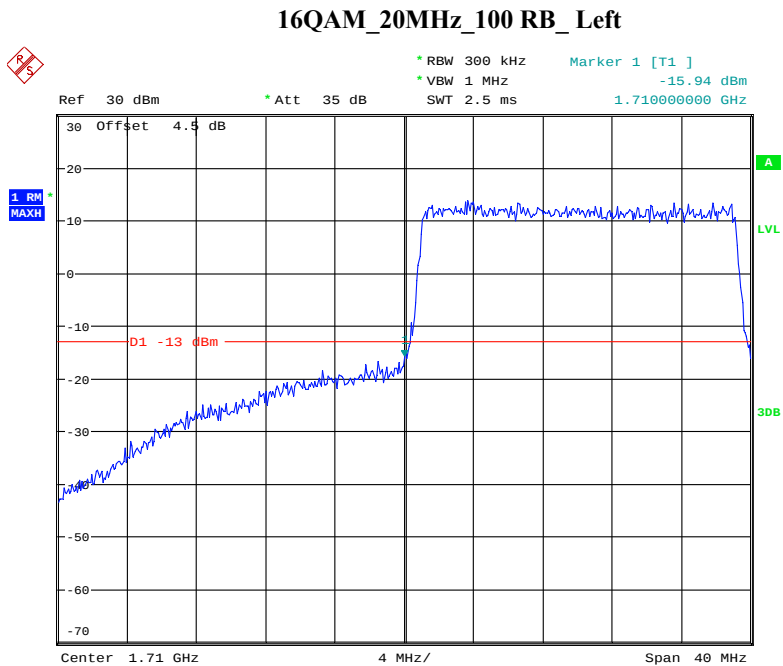
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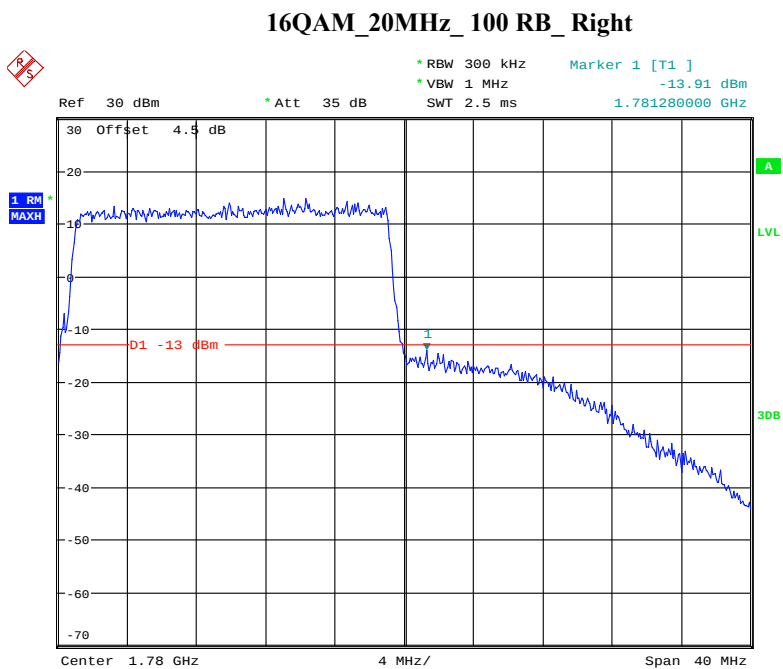
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Date: 6.JUN.2020 01:25:28



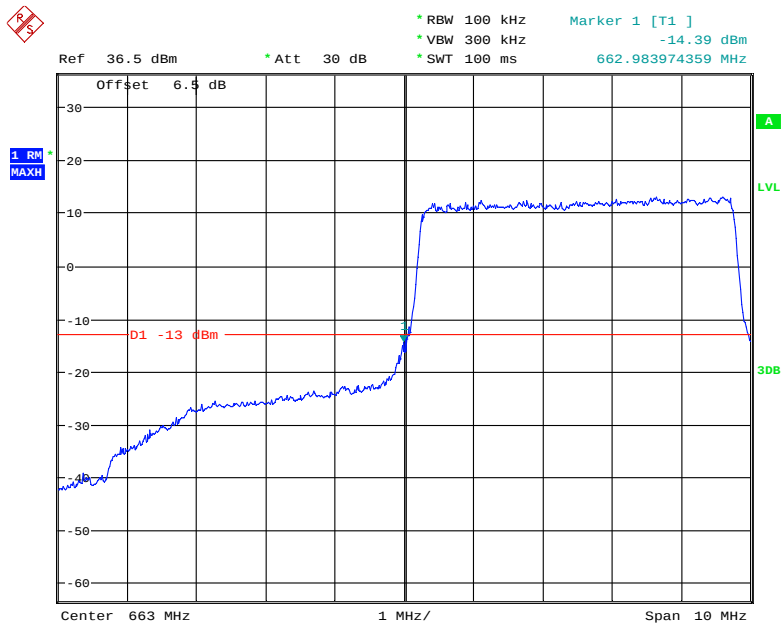
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Date: 6.JUN.2020 01:27:02

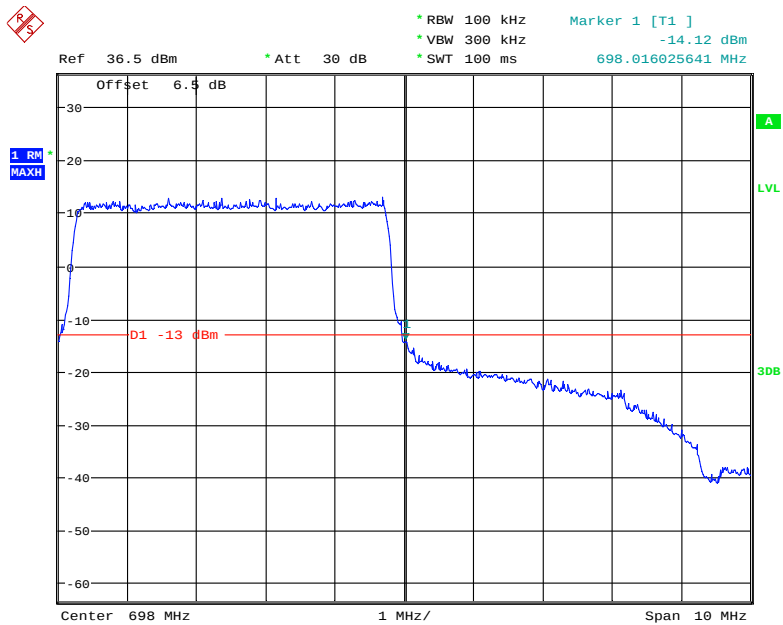
LTE Band 71

QPSK_5MHz_25 RB_ Left



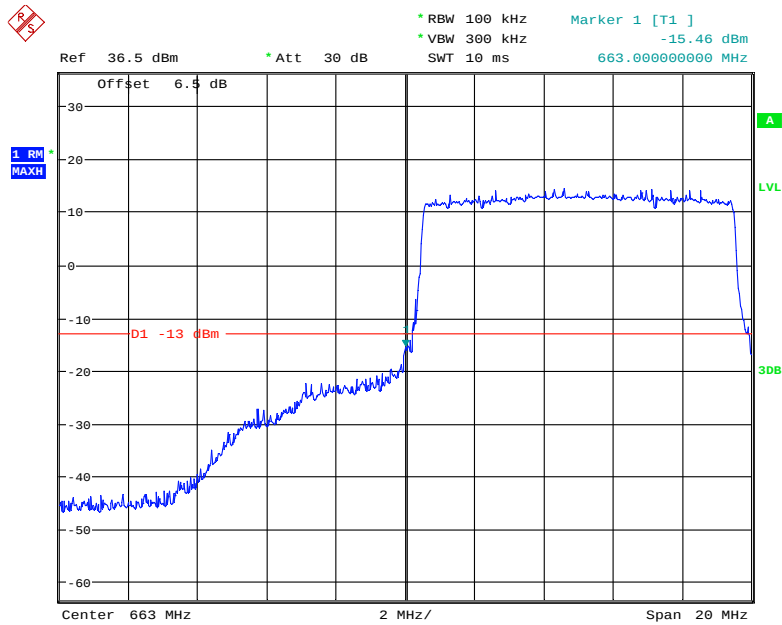
Date: 17.JUN.2020 16:00:35

QPSK_5MHz_25 RB_ Right



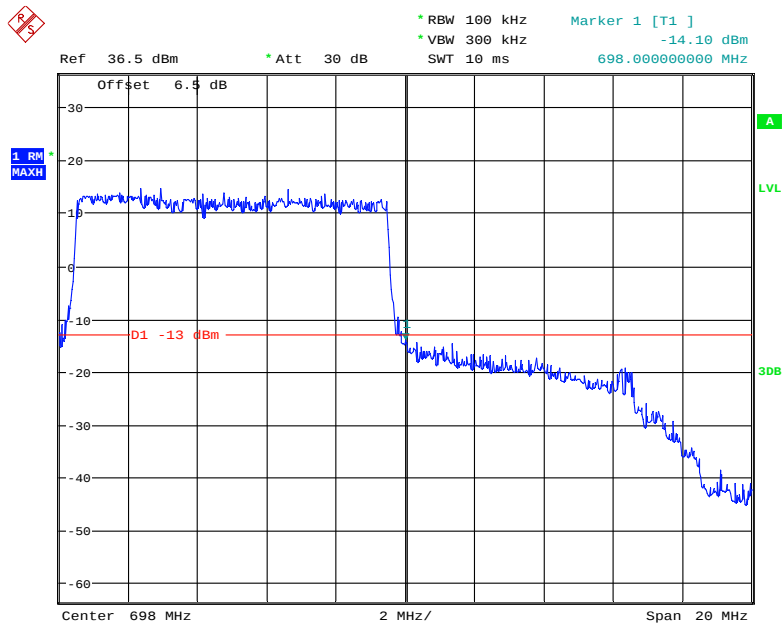
Date: 17.JUN.2020 16:03:07

QPSK_10MHz_50 RB_Left

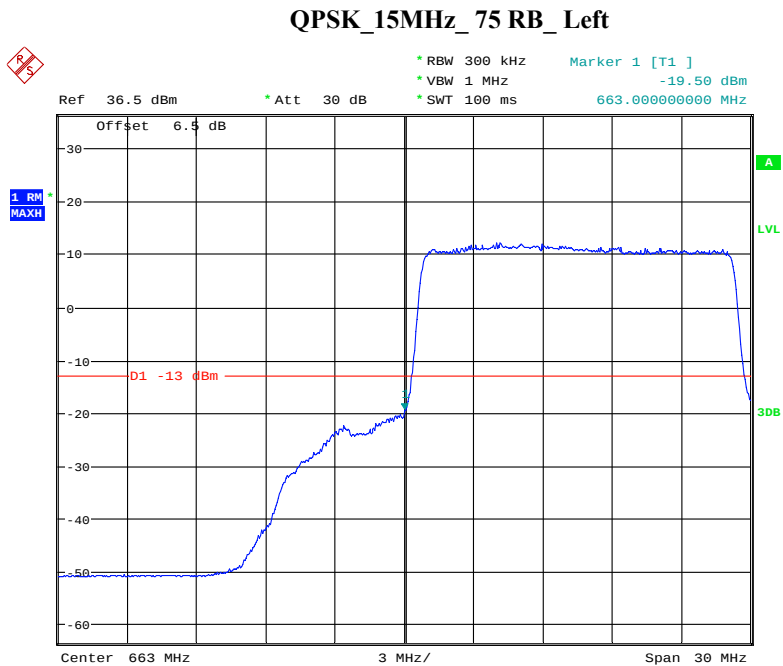


Date: 17.JUN.2020 15:57:59

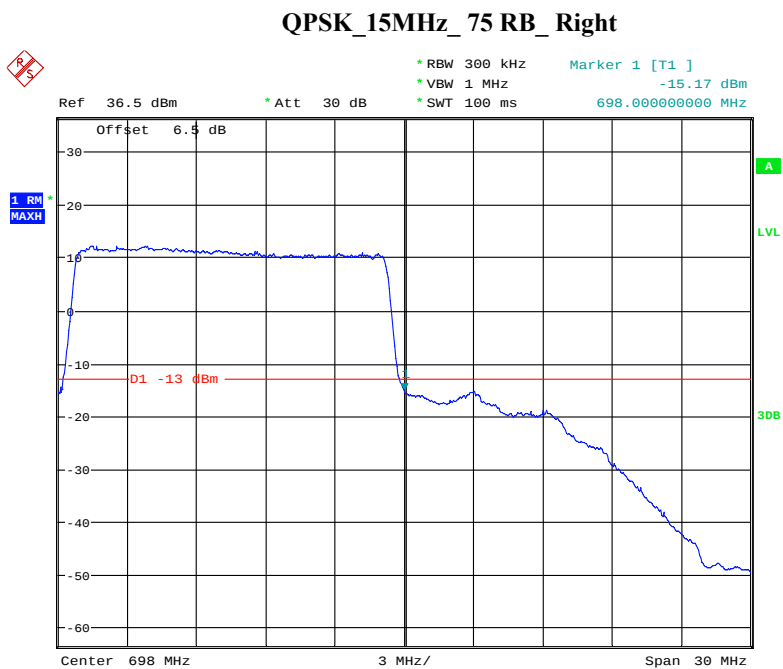
QPSK_10MHz_50 RB_Right



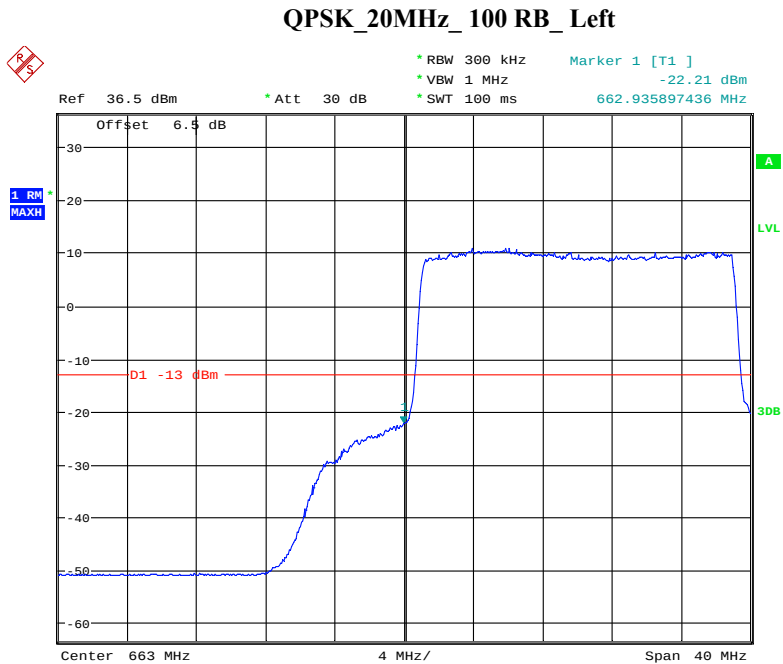
Date: 17.JUN.2020 15:56:50



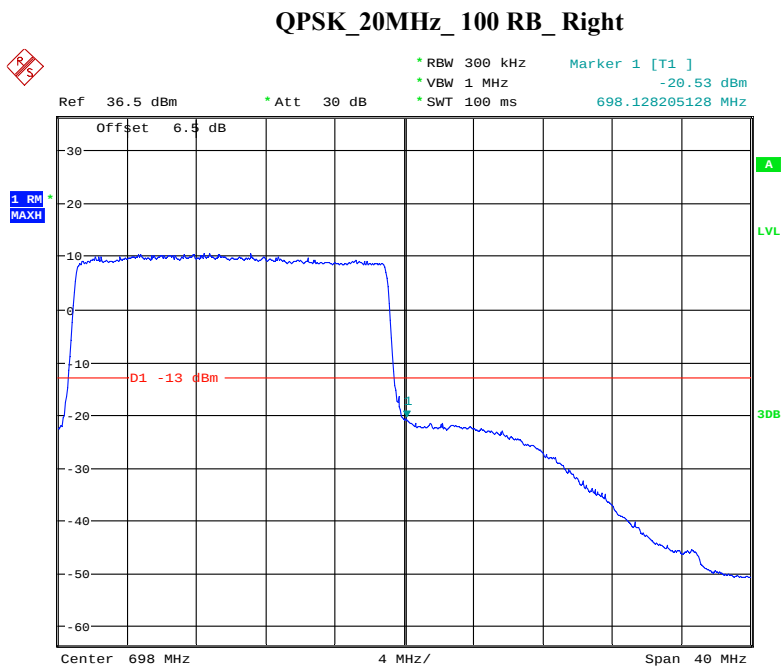
Date: 17.JUN.2020 16:06:32



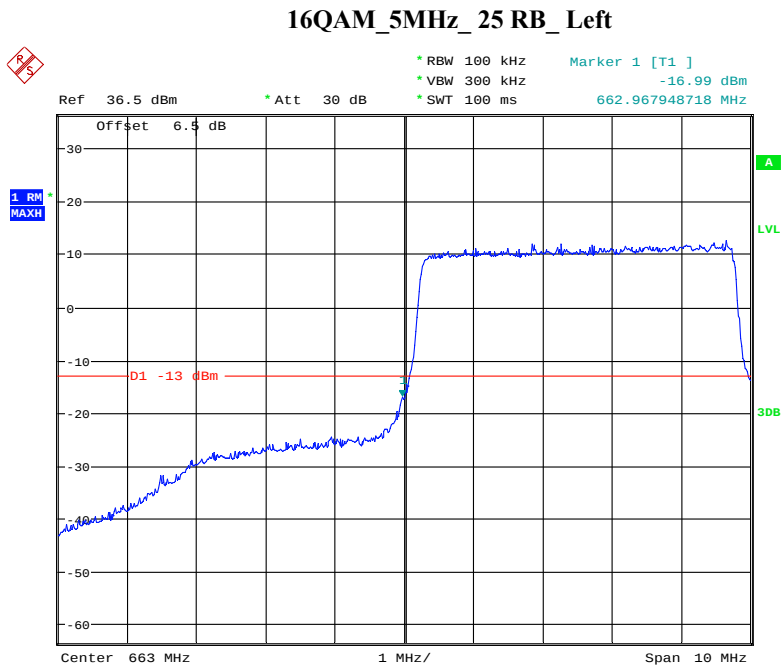
Date: 17.JUN.2020 16:04:25



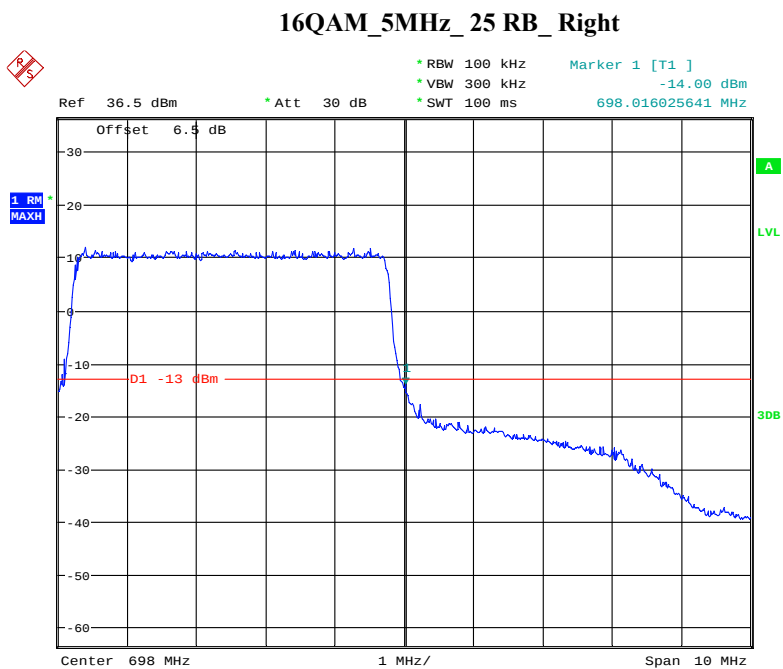
Date: 17.JUN.2020 16:07:51



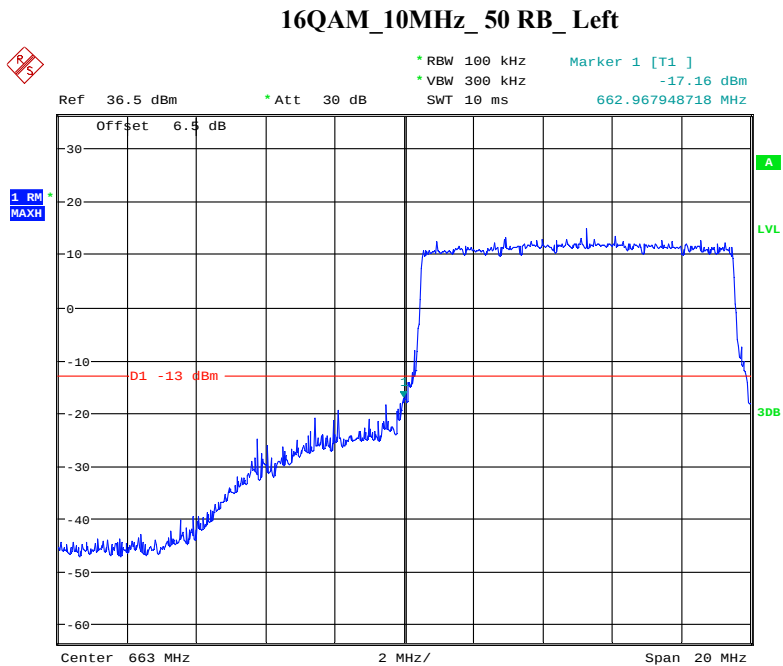
Date: 17.JUN.2020 16:10:27



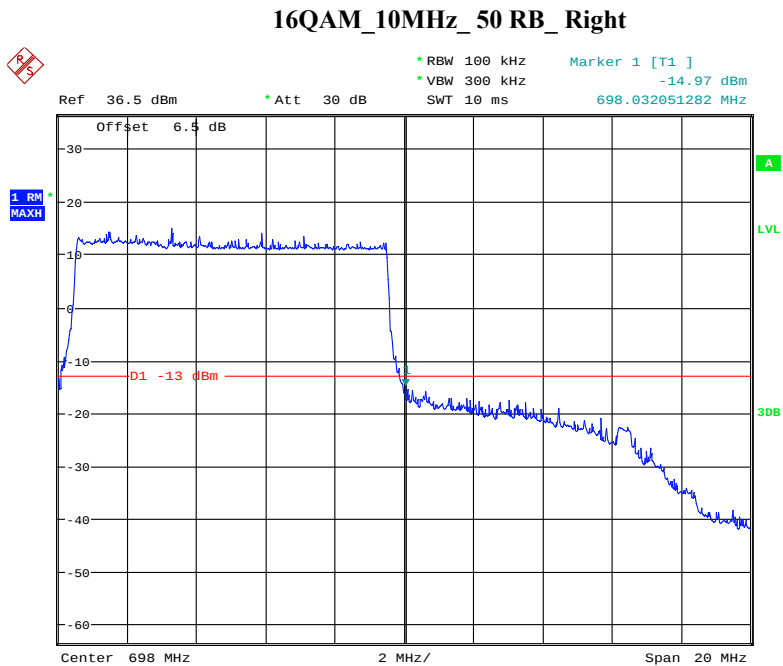
Date: 17.JUN.2020 16:01:31



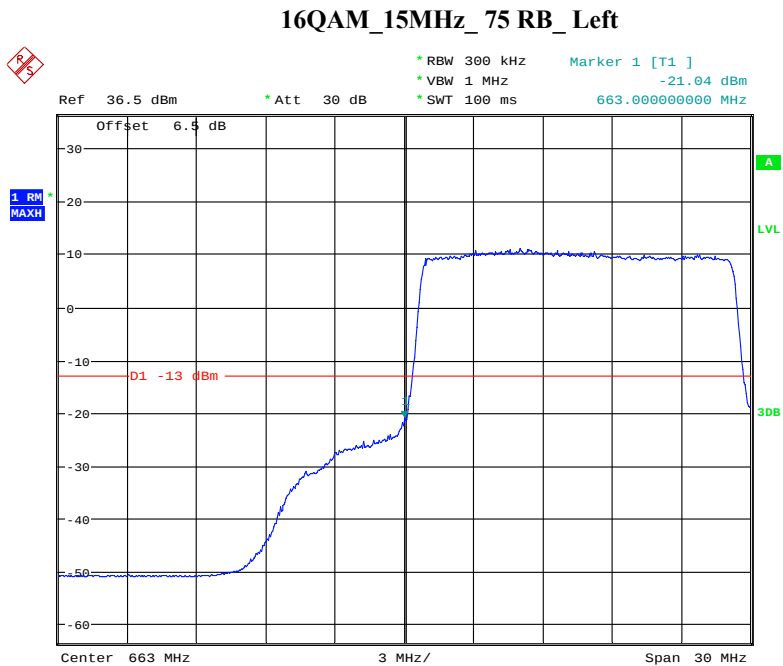
Date: 17.JUN.2020 16:02:28



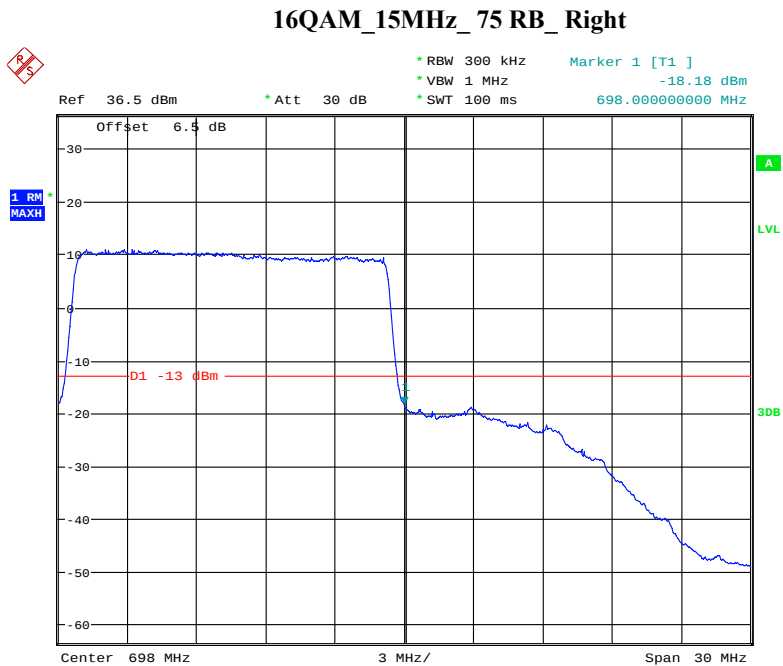
Date: 17.JUN.2020 15:58:33



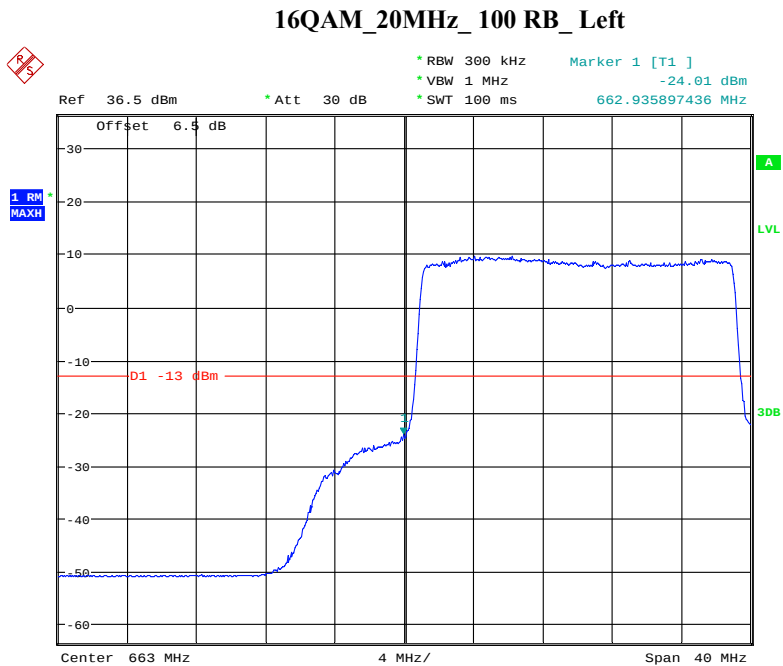
Date: 17.JUN.2020 15:55:49



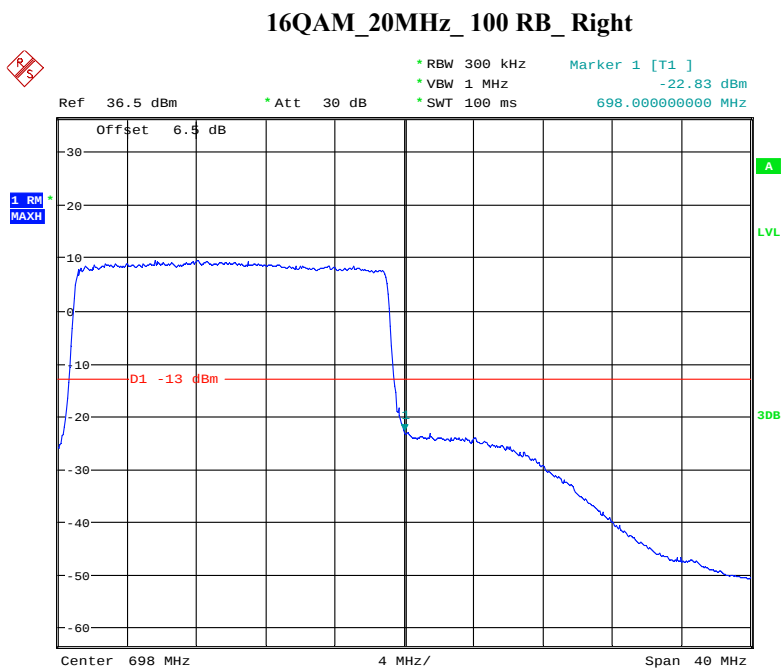
Date: 17.JUN.2020 16:05:37



Date: 17.JUN.2020 16:05:00



Date: 17.JUN.2020 16:08:19



Date: 17.JUN.2020 16:09:41

FCC §2.1055, §22.355 & §24.235 & §27.54 - FREQUENCY STABILITY

Applicable Standard

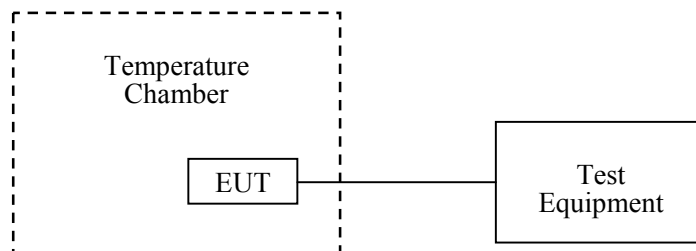
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235, §27.54

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
R&S	Spectrum Analyzer	FSP 38	100478	2020-05-09	2021-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41002201	Each Time	/
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each Time	/
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2020-03-10	2021-03-09
UNI-T	Multimeter	UT39A	M130199938	2019-07-24	2020-07-24
Pro instrument	DC Power Supply	pps3300	3300012	N/A	N/A
R&S	Universal Radio Communication Tester	CMU200	106 891	2019-09-12	2020-09-12
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-09-12	2020-09-12

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	27.1~30 °C
Relative Humidity:	54~74 %
ATM Pressure:	99.8~100.8kPa
Tester:	James Chen
Test Date:	2020-06-06~2020-06-17

Test Result: Compliance.

Cellular Band

GMSK, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.8	2	0.00239	2.5
-20		3	0.00359	
-10		2	0.00239	
0		3	0.00359	
10		3	0.00359	
20		3	0.00359	
30		3	0.00359	
40		3	0.00359	
50		3	0.00359	
20	3.6	5	0.00598	
20	4.35	4	0.00478	

EGPRS, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.8	12	0.01434	2.5
-20		12	0.01434	
-10		12	0.01434	
0		13	0.01554	
10		13	0.01554	
20		13	0.01554	
30		13	0.01554	
40		14	0.01673	
50		13	0.01554	
20	3.6	14	0.01673	
20	4.35	14	0.01673	

PCS Band

GMSK, Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Results
°C	V _{DC}	Hz	ppm	
-30	3.8	16	0.00851	Pass
-20		16	0.00851	
-10		18	0.00957	
0		18	0.00957	
10		18	0.00957	
20		18	0.00957	
30		19	0.01011	
40		18	0.00957	
50		18	0.00957	
20	3.6	17	0.00904	
20	4.35	18	0.00957	

EGPRS, Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Results
°C	V _{DC}	Hz	ppm	
-30	3.8	12	0.00638	Pass
-20		12	0.00638	
-10		12	0.00638	
0		12	0.00638	
10		13	0.00691	
20		13	0.00691	
30		13	0.00691	
40		13	0.00691	
50		13	0.00691	
20	3.6	12	0.00638	
20	4.35	13	0.00691	

WCDMA Band II: R99

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.8	19	0.01011	Pass
-20		18	0.00957	
-10		19	0.01011	
0		20	0.01064	
10		20	0.01064	
20		20	0.01064	
30		20	0.01064	
40		20	0.01064	
50		21	0.01117	
20	3.6	20	0.01064	
20	4.35	21	0.01117	

WCDMA Band IV: R99

Rel 99 Middle Channel					
Power Supplied	Temperature	F _L	Limit	F _H	Limit
V _{dc}	°C	MHz	MHz	MHz	MHz
3.8	-30	1710.26	1710	1754.77	1755
	-20	1710.28		1754.68	
	-10	1710.41		1754.60	
	0	1710.34		1754.68	
	10	1710.42		1754.54	
	20	1710.32		1754.68	
	30	1710.32		1754.76	
	40	1710.41		1754.32	
	50	1710.37		1754.77	
3.6	20	1710.60	1710	1754.38	1755
4.35	20	1710.32		1754.76	

WCDMA Band V: R99

Middle Channel, f _c = 836.6 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.8	20	0.02391	2.5
-20		20	0.02391	
-10		20	0.02391	
0		21	0.02510	
10		21	0.02510	
20		21	0.02510	
30		22	0.02630	
40		21	0.02510	
50		21	0.02510	
20	3.6	21	0.02510	2.5
20	4.35	21	0.02510	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.8	-22.87	-0.0122	Pass
-20		9.74	0.0052	
-10		-9.89	-0.0053	
0		5.12	0.0027	
10		-8.64	-0.0046	
20		9.02	0.0048	
30		-6.43	-0.0034	
40		5.92	0.0031	
50		-7.14	-0.0038	
20	4.35	-7.87	-0.0042	
20	3.6	-6.07	-0.0032	

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.8	-2.12	-0.0011	Pass
-20		7.89	0.0042	
-10		5.10	0.0027	
0		-8.50	-0.0045	
10		5.50	0.0029	
20		-5.29	-0.0028	
30		8.82	0.0047	
40		-6.74	-0.0036	
50		9.49	0.005	
20	4.35	-8.09	-0.0043	
20	3.6	8.92	0.0047	

LTE Band 4

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	MHz	MHz	MHz	MHz
3.8	-30	1710.520000	1710	1754.460000	1755
	-20	1710.720000		1754.480000	
	-10	1710.120000		1754.430000	
	0	1710.520000		1754.580000	
	10	1710.480000		1754.540000	
	20	1710.520000		1754.480000	
	30	1710.520000		1754.480000	
	40	1710.360000		1754.480000	
	50	1710.520000		1754.480000	
3.6	20	1710.620000		1754.480000	
4.35	20	1710.460000		1754.830000	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	MHz	MHz	MHz	MHz
3.8	-30	1710.600000	1710	1754.440000	1755
	-20	1710.400000		1754.130000	
	-10	1710.610000		1754.510000	
	0	1710.680000		1754.480000	
	10	1710.320000		1754.660000	
	20	1710.520000		1754.480000	
	30	1710.200000		1754.480000	
	40	1710.360000		1754.430000	
	50	1710.120000		1754.120000	
3.6	20	1710.500000		1754.480000	
4.35	20	1710.620000		1754.480000	

LTE Band 5

QPSK, Channel Bandwidth:10MHz				
Middle Channel, $f_c = 836.5$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V_{DC}	Hz	ppm	ppm
-30	3.8	-0.81	-0.001	2.5
-20		-5.64	-0.0067	
-10		-7.52	-0.009	
0		7.35	0.0088	
10		-8.26	-0.0099	
20		-5.61	-0.0067	
30		8.45	0.0101	
40		-7.64	-0.0091	
50		9.07	0.0108	
20	4.35	9.70	0.0116	
20	3.6	-8.35	-0.01	

16QAM, Channel Bandwidth:10MHz				
Middle Channel, $f_c = 836.5$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V_{DC}	Hz	ppm	ppm
-30	3.8	-1.26	-0.0015	2.5
-20		-6.19	-0.0074	
-10		-6.11	-0.0073	
0		-9.41	-0.0112	
10		9.53	0.0114	
20		-5.19	-0.0062	
30		-5.40	-0.0065	
40		-6.66	-0.008	
50		-9.63	-0.0115	
20	4.35	7.66	0.0092	
20	3.6	7.83	0.0094	

LTE Band 7:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V _{DC}	F _L	F _H	F _L	F _H
-30	3.8	2500.070000	2569.640000	2500	2570
-20		2500.550000	2569.660000	2500	2570
-10		2500.520000	2569.510000	2500	2570
0		2500.450000	2569.430000	2500	2570
10		2500.460000	2569.460000	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.120000	2569.080000	2500	2570
40		2500.670000	2569.440000	2500	2570
50		2500.280000	2569.230000	2500	2570
20	4.35	2500.680000	2569.480000	2500	2570
20	3.6	2500.610000	2569.330000	2500	2570

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V _{DC}	F _L	F _H	F _L	F _H
-30	3.8	2500.800000	2569.400000	2500	2570
-20		2500.520000	2569.520000	2500	2570
-10		2500.520000	2569.400000	2500	2570
0		2500.620000	2569.750000	2500	2570
10		2500.430000	2569.450000	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2501.120000	2569.400000	2500	2570
40		2500.200000	2569.570000	2500	2570
50		2500.670000	2569.390000	2500	2570
20	4.35	2500.340000	2569.750000	2500	2570
20	3.6	2500.670000	2569.250000	2500	2570

LTE Band 12:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	699.580000	715.460000	699	716
-20		699.820000	715.490000	699	716
-10		699.420000	715.400000	699	716
0		699.700000	715.620000	699	716
10		699.440000	715.620000	699	716
20		699.520000	715.520000	699	716
30		699.460000	715.710000	699	716
40		699.830000	715.460000	699	716
50		699.420000	715.040000	699	716
20	4.35	699.760000	715.860000	699	716
20	3.6	699.380000	715.740000	699	716

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	699.580000	715.580000	699	716
-20		699.480000	715.600000	699	716
-10		699.310000	715.530000	699	716
0		699.520000	715.540000	699	716
10		699.200000	715.360000	699	716
20		699.520000	715.480000	699	716
30		699.660000	715.230000	699	716
40		699.630000	715.640000	699	716
50		698.960000	715.370000	699	716
20	4.35	699.520000	715.390000	699	716
20	3.6	699.140000	715.330000	699	716

LTE Band 66:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	1710.660000	1779.680000	1710	1780
-20		1710.840000	1779.480000	1710	1780
-10		1710.680000	1779.520000	1710	1780
0		1710.550000	1779.760000	1710	1780
10		1710.680000	1779.460000	1710	1780
20		1710.520000	1779.520000	1710	1780
30		1710.800000	1779.440000	1710	1780
40		1710.760000	1779.640000	1710	1780
50		1710.520000	1779.580000	1710	1780
20	4.35	1710.790000	1779.670000	1710	1780
20	3.6	1710.800000	1779.420000	1710	1780

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	1710.600000	1779.500000	1710	1780
-20		1710.570000	1779.520000	1710	1780
-10		1710.520000	1779.870000	1710	1780
0		1710.530000	1779.520000	1710	1780
10		1710.460000	1779.440000	1710	1780
20		1710.520000	1779.520000	1710	1780
30		1710.360000	1779.500000	1710	1780
40		1710.530000	1779.620000	1710	1780
50		1710.460000	1779.890000	1710	1780
20	4.35	1710.890000	1779.480000	1710	1780
20	3.6	1710.380000	1779.620000	1710	1780

LTE Band 71:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V _{DC}	F _L	F _H	F _L	F _H
-30	3.8	663.4744	697.6952	663	698
-20		663.4760	697.6973	663	698
-10		663.4724	697.6956	663	698
0		663.4758	697.6970	663	698
10		663.4733	697.6951	663	698
20		663.4737	697.6951	663	698
30		663.4760	697.6975	663	698
40		663.4721	697.6959	663	698
50		663.4766	697.6978	663	698
20	4.35	663.4739	697.6950	663	698
20	3.6	663.4744	697.6941	663	698

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V _{DC}	F _L	F _H	F _L	F _H
-30	3.8	663.4741	697.6952	663	698
-20		663.4737	697.6955	663	698
-10		663.4755	697.6974	663	698
0		663.4731	697.6961	663	698
10		663.4756	697.6980	663	698
20		663.4737	697.6950	663	698
30		663.4739	697.6949	663	698
40		663.4740	697.6959	663	698
50		663.4724	697.6948	663	698
20	4.35	663.4732	697.6973	663	698
20	3.6	663.4735	697.6944	663	698

Note: The fundamental emissions stay within the authorized bands of operation based on the frequency deviation measured is small, the extreme voltage was declared by applicant.

******* END OF REPORT *******